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Unbundling Risk

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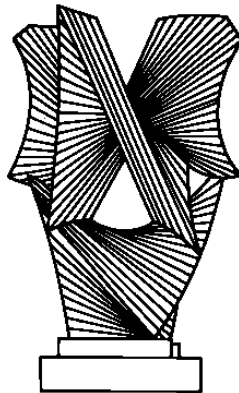
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UNBUNDLING RISK

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UNBUNDLING RISK

*Lee Anne Fennell**

In a 1963 lecture, Kenneth Arrow posited a world featuring complete markets in risk that would permit anyone “to bet, at fixed odds, any amount he wishes on the occurrence of any event which will affect his welfare in any way.”¹ Under such a system, no human endeavor or experience would come with a fixed quantum of risk or insurance immutably bundled with it; rather, risk would be an à la carte element that could be bought and sold in any increment to suit the tastes and needs of each individual. A great deal of creative work over the past several decades has examined ways to move closer to that ideal. Some of the most intriguing proposals would allow ordinary people to shift risks that profoundly affect their lives, such as those involving the value of their homes or their income potential.² The growing literature on risk rearrangement has addressed not only how additional risks might be buffered, but also how existing protection against risk might be shed through “reverse insurance” or “anti-insurance” products.³ For example, a number of scholars have examined the merits of allowing individuals to sell their

* Professor of Law, University of Chicago Law School. For helpful questions, comments, and conversations about this project, I thank Rosalind Dixon, Frank Easterbrook, Mark Fenster, Christopher Fennell, Victor Goldberg, Jeffrey Gordon, Saul Levmore, Jonathan Nash, William Page, Ariel Porat, Alex Raskolnikov, Alan Schwartz, Michael Wolf, and participants in presentations at Columbia University School of Law, Tel Aviv University Faculty of Law, the University of Chicago Law School, the University of Illinois College of Law, the University of Florida College of Law, and the 2008 Midwestern Law and Economics Association Meeting. Prisca Kim, Catherine Kiwala, and Eric Singer provided excellent research assistance.

¹ Kenneth J. Arrow, *Insurance, Risk and Resource Allocation*, in *ESSAYS IN THE THEORY OF RISK-BEARING* 134, 138 (1971) (originally delivered in the Yrjö Jahnsson lecture series in Helsinki in December 1963) [hereinafter “Arrow, *Insurance*”]. The Arrow-Debreu general equilibrium model, developed in prior work by Arrow and by Gerard Debreu, contemplates complete markets in contingent claims. *See, e.g.*, DAVID A. MOSS, *WHEN ALL ELSE FAILS: GOVERNMENT AS THE ULTIMATE RISK MANAGER* 35 & 345 n. 36 (2002) (citing Kenneth J. Arrow, *The Role of Securities in the Optimal Allocation of Risk-Bearing*, 31 *REV. ECON. STUD.* 91 (1964) [original French version, 1953]; GERARD DEBREU, *THEORY OF VALUE: AN AXIOMATIC ANALYSIS OF GENERAL EQUILIBRIUM*, ch. 7 (1959)); *see also* Robert Hockett, *What Kinds of Stock Ownership Plans Should There Be? Of ESOPS, Other SOPS, and “Ownership Societies,”* 92 *CORNELL L. REV.* 865, 945-46 & n. 332 (2007) (discussing the intellectual history of “Arrow securities,” which pay out based on various states of the world and facilitate trading in risk).

² *See, e.g.*, ROBERT J. SHILLER, *THE NEW FINANCIAL ORDER: RISK IN THE 21ST CENTURY* 107-10 (2003); *see also* Parts II.C and D, *infra*.

³ *See, e.g.*, GUIDO CALABRESI, *THE COSTS OF ACCIDENTS* 219-20 (1970) (describing “reverse insurance”); Robert Cooter & Ariel Porat, *Anti-Insurance*, 31 *J. LEGAL STUD.* 203 (2002) (proposing “anti-insurance” in contract and torts contexts); Steven P. Croley & Jon D. Hanson, *The Nonpecuniary Costs of Accidents: Pain-and-Suffering Damages in Tort Law*, 108 *HARV. L. REV.* 1786, 1821, 1883-84, 1893-95 (1995) (discussing “disinsurance”); George L. Priest, *The Current Insurance Crisis and Modern Tort Law*, 96 *YALE L.J.* 1521, 1546 (1987) (noting potential role for “reverse or anti-insurance”); Eric Kades, *Windfalls*, 108 *YALE L.J.* 1489, 1496-1500 (1999) (proposing “reverse insurance” for offloading the upside risk of windfalls).

“unmatured” tort claims—that is, claims based on injuries that have not yet occurred.⁴ New innovations for moving risk around outside of traditional insurance markets continue to appear, and still more can be readily imagined.⁵

Despite significant academic and entrepreneurial interest in expanding risk markets, the stakes that individuals hold in the outcomes of a wide range of activities and enterprises continue to follow deeply entrenched patterns. People are often unable to modify the risk positions specified by background legal and social arrangements, whether those positions produce unwanted coverage or unwanted exposure.⁶ These rigidities are not uniformly distributed, however. Not only are there striking differences between the risk customization opportunities available to sophisticated financial actors and to individuals,⁷ but the suite of risk management tools to which ordinary households have access is marked by unexplained asymmetries and puzzling gaps. Examples are plentiful. It is easy to insure against accidents, but impossible to shed the implicit insurance that comes bundled with the tort system. It is routine to buy fire insurance, but difficult to insure against the risk of fluctuations in the local housing market.⁸ It is unremarkable to retain an entitlement to risky future income streams, but unusual to explicitly sell off the right to receive them—and virtually unheard of to place bets that would double one’s return from them.⁹

⁴ See, e.g., Marc J. Shukaitis, *A Market in Personal Injury Tort Claims*, 16 J. LEGAL STUD. 329 (1987); Robert Cooter, *Towards a Market in Unmatured Tort Claims*, 75 VA. L. REV. 383 (1989); Stephen D. Sugarman, *Doing Away With Tort Law*, 73 CALIF. L. REV. 558 (1985); see also ROBERT NOZICK, *ANARCHY, STATE, AND UTOPIA* 77 (1974); Madeline Morris, *The Structure of Entitlements*, 78 CORNELL L. REV. 822, 867 (1993); see also Part II.B.1, *infra*.

⁵ See *infra* Part II for examples.

⁶ If people could shed risk and insurance with equal and perfect ease, law’s initial allocations would not stand in the way of efficient reallocations. See R.H. Coase, *The Problem of Social Cost*, 3 J. L. & ECON. 1 (1960); see also Arrow, *Insurance*, *supra* note 1, at 134-43 (discussing and analyzing incompleteness in insurance markets).

⁷ Derivatives are used by business entities to transfer risk in innumerable ways. See, e.g., PHELIM BOYLE & FEIDLIM BOYLE, *DERIVATIVES: THE TOOLS THAT CHANGED FINANCE* xi (2001). Indeed, Alan Greenspan explicitly described them as adding value by “unbundling risks.” See Alan Greenspan, Federal Reserve Board, *Financial Derivatives*, Remarks Before the Futures Industry Association, Boca Raton, Florida, Mar. 19, 1999, available at <http://www.federalreserve.gov/BOARDDOCS/SPEECHES/1999/19990319.htm>. To allude to such risk-shifting mechanisms in the current economic climate invites the reaction that risk-rearrangement innovations should be more tightly curtailed rather than made more broadly available. A discussion of the causes of the financial crisis is beyond the scope of this paper, but the difficulties have been broadly associated with the mispricing of risk. For a recent overview, see Susan M. Wachter, *The Ongoing Financial Upheaval: Understanding the Sources and Way Out* (August 27, 2009). U of Penn, Inst for Law & Econ Research Paper No. 09-30, available at <http://ssrn.com/abstract=1464791>. While it is true that trading in risk is a condition precedent to mispricing it, pricing flaws can be addressed without dismantling risk markets altogether.

⁸ Some explicit mechanisms do exist for hedging or insuring against housing market risks, but these are not in widespread use and are unavailable as a practical matter to the great majority of households. See *infra* Part II.C.1.

⁹ The conceptual case for such a bet is set out in Cooter & Porat, *supra* note 3, at 218-21.

The absence of explicit risk markets in a given domain does not mean that people are utterly unable to adjust their exposure to variance. The point, rather, is that they can often only do so by selecting or refusing a package that also contains some other good, service, activity, or endeavor. For example, a person who does not want to risk a loss in home value can rent instead.¹⁰ An individual who does not want the high variance in income that characterizes a life as an artist can sell her labor to an employer pursuant to a long-term contract. Within limits, one can work at a riskier job in exchange for higher pay or consume cheaper products that come with greater health and safety risks. But, outside of a few varieties of insurance, it is difficult for individuals to engage in free-standing or unbundled risk adjustments. The distinction is not trivial. If risk levels cannot be independently adjusted, heterogeneous risk preferences can distort other consumption and activity choices, reduce welfare, or both. Certain kinds of private bargains capable of improving incentive structures are also precluded if risk cannot be traded separately.¹¹ More broadly, society's policy menu is impoverished if individuals cannot undo risk allocations that are packaged within particular societal arrangements, or if they can only reduce exposure from a given baseline but not increase it.

Risk innovation always attempts a finer-grained unbundling of risk from the products, services, conditions, or activities in which it is embedded.¹² Once unmoored, risk can be shifted in virtually unlimited ways, allowing parties to move freely from risk to coverage (insurance) and from coverage to risk (reverse insurance). Most of the existing work in this area has focused on the merits of revised risk allocations within particular contexts. This paper takes a different tack by examining questions surrounding risk unbundling itself—the costs and benefits of allowing people to reverse default risk arrangements selectively.¹³ My analysis focuses primarily on risks routinely encountered by individuals and households—contexts where stand-alone risk reallocation opportunities are often absent or constrained, and cognitive and social considerations loom large.¹⁴ As both a

¹⁰ Similarly, one can hedge against future price increases in a given local housing market by actually buying a house in that market or in a correlated market. *See, e.g.,* Todd Sinai & Nicholas S. Souleles, *Owner-Occupied Housing as a Hedge Against Rent Risk*, 120 Q.J. ECON. 763 (2005).

¹¹ For example “anti-insurance” contracts that place the risk of loss on both parties to an interaction require the participation of a third party that can enter into transactions over risk. *See* Cooter & Porat, *supra* note 3; *infra* Part I.C.

¹² Risk innovation is not always framed in these terms, of course, but the “unbundling” characterization has been explicitly used by, e.g., Greenspan, *supra* note 7.

¹³ Perhaps the most well-developed body of literature addressing the ability to undo background arrangements is in the area of contract default rules. *See, e.g.,* Ian Ayres & Robert Gertner, *Filling Gaps in Incomplete Contracts: An Economic Theory of Default Rules*, 99 YALE L.J. 87 (1989); Russell Korobkin, *The Status Quo Bias and Contract Default Rules*, 83 CORNELL L. REV. 608 (1998); Omri Ben-Shahar & John A. E. Pottow, *On the Stickiness of Default Rules*, 33 FLA. ST. U. L. REV. 651 (2006). While relevant to the present discussion—contracts do allocate risk, among other things—a gap remains between this literature and broader questions of risk reversibility among parties who are not otherwise in contractual relationships with each other.

¹⁴ The possibility that people may act irrationally in making insurance decisions, and that framing and defaults might play a role, has received significant attention. *See, e.g.,* Howard Kunreuther & Mark Pauly, *Insurance Decision-Making and Market Behavior*, 1 FOUNDATIONS AND TRENDS IN MICROECONOMICS 63,

regulator and an important direct provider of risk pooling services, government has an interest in fostering the set of risk modification tools that will most cost-effectively achieve its policy ends. But it is not obvious whether this means prohibiting unbundled risk transactions, allowing market-based moves away from default risk allocations (with or without added degrees of stickiness built in), subsidizing the development of new markets in risk, or directly providing risk customization opportunities. As scholarly and entrepreneurial interest in risk innovations continues to intensify, these questions will become increasingly pressing. This paper provides a framework for answering them.

I do not make a normative case here for giving people vastly expanded access to risk rearrangement opportunities, nor do I advocate for particular additions to the risk menu. Instead, the project is an analytic one that classifies possible risk moves and probes their logical and practical similarities and differences. Part of the inquiry involves examining risk-bearing patterns and asking whether the lines that currently separate the available from the unavailable, the permissible from the forbidden, the routine from the rare, track meaningful normative distinctions or whether they are instead artifacts of tradition or framing. For example, reverse insurance schemes sound quite exotic, but they do nothing more than reproduce the risk allocation that would have prevailed in the absence of some insurance mechanism, whether explicit or embedded in law or policy.¹⁵

Thinking about risk customization as a distinct issue also allows us to sharpen, refine, and differentiate among objections and obstacles. Arguments about the merits or sustainability of a particular risk allocation endstate, for instance, carry different implications than arguments about the ease with which customization can be accomplished or the desirability of preserving homogeneity in risk arrangements. Likewise, some concerns about risk markets center on features of risk reallocation that are not essential to the reallocation itself and that are therefore amenable to design-arounds. For example, the worry that people will sell unmatured tort claims out of a myopic desire for an immediate lump of cash could be addressed by restructuring the time and manner in which the expected value equivalent of a potential tort claim is delivered.¹⁶ Here, the real objection pertains not to the unbundling of risk from underlying tort arrangements, but rather to the failure to *also* unbundle risk from certain malleable payment features.

Beyond identifying functional equivalences and spurious connections, viewing risk as a potentially segregable element opens the door to untapped design innovations. For example, because reverse insurance mechanisms are virtually unknown, it is typical to compare mandatory insurance regimes with voluntary opt-in regimes while ignoring the possibility of an opt-out regime—despite the potential advantages of the latter

88-97 (2005); Eric J. Johnson et al., *Framing, Probability Distortions, and Insurance Decisions*, J. RISK & UNCERTAINTY 35 (1993); Cass R. Sunstein, *Switching the Default Rule*, 77 N.Y.U.L. Rev. 106, 114 (2002).

¹⁵ For an overview of implicit insurance provided through various laws and benefit programs, see MOSS, *supra* note 1, at 314-15 tbl. 10.2.

¹⁶ See *infra* Part IV.B.1.

alternative.¹⁷ While I will leave to others the question of whether such redesigns would ultimately prove normatively attractive, I raise them here because they offer underexplored approaches that appear to be broadly consistent with some of the policy goals that have been articulated in discussions of risk and insurance.

The paper proceeds in four parts. After briefly reviewing why people might want to take on or shed risk, Part I presents a taxonomy of risk-reallocating transactions. I refer to these moves collectively as “risk/expected value exchanges” or “REVEs.” Part II surveys REVEs that presently exist outside of traditional insurance markets, as well as gaps where new REVEs might emerge. Part III considers whether greater risk customization would be likely to advance efficiency by examining some of the reasons that risk reallocation opportunities are currently blocked or missing. Part IV synthesizes and builds on the analysis in the previous parts. After suggesting that existing gaps and asymmetries in opportunities to alter risk positions do not map well onto plausible normative distinctions, I show how minor design tweaks might counter identified problems with certain kinds of REVEs. I close by examining new policy alternatives that emerge from a focus on society’s dual tasks of setting default risk allocations and choosing the level of stickiness.¹⁸

I. REARRANGING RISK: WHY AND HOW

A. *Why Insure or Uninsure?*

To frame the analysis that follows, it is first helpful to ask why rearranging risk might be worthwhile from either a societal or individual perspective. The standard economic account emphasizes two considerations. First, if risk is shifted to a party who is in a better position to reduce the odds of a negative occurrence or to increase the odds of a positive occurrence, the shift can improve the mix of bad and good events.¹⁹ A corollary of this point is that removing risk from a party who is in a good position to control events can lead to losses due to moral hazard.²⁰ This line of analysis emphasizes the beneficial incentive effects of exposure (or the detrimental incentive effects of nonexposure).²¹

Second, efficiency gains can be achieved if risk averse individuals transfer risk to parties who have a greater ability to diversify, spread, or pool it, or who are simply less

¹⁷ See *infra* Part IV.C (examining the significance of default selections).

¹⁸ Cf. Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1090-92 (1972) (noting that society must make two decisions about entitlements—who will be granted the entitlement, and how it will be protected).

¹⁹ This point is associated with Guido Calabresi’s notion of the “cheapest cost avoider.” See CALABRESI, *supra* note 3, at 136-38; see also MOSS, *supra* note 1, at 232-34 (discussing “efficient risk shifting”).

²⁰ See *infra* Part III.B.1.

²¹ Significantly, this set of considerations comes into play only when it is impossible to fully disaggregate risk from factors under the control of a particular party.

averse to risk.²² Risk aversion, in turn, is typically explained by reference to the diminishing marginal utility of money, which would cause people to prefer small but certain monetary gains and losses over larger but less likely gains and losses that have the same expected values.²³ Scholars have characterized insurance as a device for moving money from states of the world in which it produces lower marginal utility to ones in which it produces greater marginal utility.²⁴ We would expect a utility-maximizing person to continue this process until—and only until—the marginal utilities are equalized across her various possible futures.²⁵ In Richard Zeckhauser's words, “[t]he rule comes down to spending your money where it does the most good.”²⁶

A focus on the diminishing marginal utility of money reveals not only why people might buy insurance but also why they might want to refrain from doing so. Money produces greater marginal utility after an event has happened than it did before only if the event either directly reduces one's monetary resources, such as one's earning capacity, or otherwise changes one's need for or utility from money.²⁷ Some of the most devastating losses that people experience—the death of a minor child, or severe pain and suffering—typically do not produce monetary losses and are not usually thought to increase the marginal utility of money—in fact, they may do the opposite.²⁸ In these cases, moving money from the pre-loss state of the world to the post-loss state would reduce utility. The same reasoning explains why people might at times wish to “sell” existing insurance (say, from a baseline of tort coverage) by accepting exposure to risk in exchange for a payment.²⁹

These points, which have been marshaled in support of various tort reform

²² See, e.g., MOSS, *supra* note 1, at 33-35; Johnson et al., *supra* note 14, at 36.

²³ See, e.g., JONATHAN BARON, THINKING AND DECIDING 508-09 (3d ed. 2000); Croley & Hanson, *supra* note 3, at 1786, 1794-96. Work pioneered by Daniel Kahneman and Amos Tversky raises important challenges to this account by finding that people show aversion to losses (from a given reference point), rather than to risk as such, and that they are disproportionately sensitive to small losses from that reference point. See, e.g., Amos Tversky & Daniel Kahneman, *The Framing of Decisions and the Psychology of Choice*, 211 SCI. 453 (1981); Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision under Risk*, 47 ECONOMETRICA 263 (1979); see also Paul Slovic et al., *Preferences for Insuring Against Probable Small Losses: Insurance Implications*, in THE PERCEPTION OF RISK 51, 67-70 (Paul Slovic, ed., 2000).

²⁴ See, e.g., Richard J. Zeckhauser, *Coverage for Catastrophic Illness*, 21 PUB. POL'Y 149, 156-57 (1973).

²⁵ See, e.g., Zeckhauser, *supra* note 24, at 156; Priest, *supra* note 3, at 1546; Croley & Hanson, *supra* note 3, at 1795 & diagram 2.

²⁶ Zeckhauser, *supra* note 24, at 155.

²⁷ See, e.g., Cooter, *supra* note 4, at 388-92; David Friedman, *What Is 'Fair Compensation' for Death or Injury?* 2 INT'L REV. L. & ECON. 81, 85-87 (1982); see also Croley & Hanson, *supra* note 3, at 1797-1802 (providing an overview of the conventional view on this issue).

²⁸ See, e.g., Priest, *supra* note 3, at 1546-47; Alan Schwartz, *Proposals for Products Liability Reform: A Theoretical Synthesis*, 97 YALE L.J. 353, 362-64 (1988); Cooter, *supra* note 4, at 389; Croley & Hanson, *supra* note 3, at 1797-1802; W. Kip Viscusi & William N. Evans, *Utility Functions That Depend on Health Status: Estimates and Economic Implications*, 80 AM. ECON. REV. 353, 371 (1990).

²⁹ See, e.g., Friedman, *supra* note 27, at 84 (1982); Priest, *supra* note 3, at 1547; see also Croley & Hanson, *supra* note 3, at 1799-1802 (discussing the conventional wisdom on this point).

proposals,³⁰ are open to a number of caveats and qualifications. Perhaps most foundationally, it is no more self-evident that individuals should wish to maximize utility over an entire lifetime and across all possible states of the world than it is that societies should want to maximize utility across their populations.³¹ Even if lifetime utility maximization is the goal, it is possible that changes in total utility levels affect the marginal utility of money, independent of wealth.³² For example, the possibility that people derive “consolation” utility from the fact of being compensated after a loss, quite apart from the utility that the money itself will produce, adds an interesting wrinkle.³³ Moreover, the marginal utility of money may not always smoothly decline across all ranges; there may be discontinuities and ranges in which the marginal utility of money is increasing.³⁴ Individual differences along these and other dimensions are sources of heterogeneity that may prove policy relevant.

B. REVEs: A Taxonomy

Now that we have some idea why people might want to engage in transactions to reallocate risk, we can begin to categorize those transactions. Risk/expected value exchanges (REVEs) are a theoretical possibility whenever there is variance in future states of the world³⁵ and enough information about the distribution of those states to calculate an expected value.³⁶ In the simplest REVE, one party receives or pays the expected value (in all states of the world),³⁷ while the other party accepts the bundle of future possible states that carry that expected value, ultimately suffering or enjoying the loss or gain, if any, in the state of the world that actually obtains (or reconveying the bundle to someone else who will do so). Of course, real-world REVEs involve an amount added to (or deducted from) the expected value for administrative costs and profits, but

³⁰ For a survey of reforms premised on this analysis, see Croley & Hanson, *supra* note 3, at 1804-12.

³¹ See, e.g., Croley & Hanson, *supra* note 3, at 1832; *id.* at 1825 n. 125..

³² See Croley & Hanson, *supra* note 3, at 1813-22; Kunreuther & Pauly, *supra* note 14, at 83-84.

³³ See Christopher K. Hsee & Howard C. Kunreuther, *The Affection Effect in Insurance Decisions*, 20 J. RISK & UNCERTAINTY 141, 145-46 (2000) (presenting the “consolation hypothesis” to explain experimental results in which people were willing to devote more time to obtain a fixed amount of compensation for a damaged object when asked to imagine that they loved the object); see also Kunreuther & Pauly, *supra* note 14, at 84, 93.

³⁴ The Friedman-Savage utility curve, which was developed to explain apparent anomalies in risk-related behavior, embodies the hypothesis that there are intervals within which the marginal utility of money is increasing. See, e.g., Milton Friedman & L.J. Savage, *The Utility Analysis of Choices Involving Risk*, 56 J. POLIT. ECON. 279, 298-99 (1948); see also CALABRESI, *supra* note 3, at 39-40; CHARLES KARELIS, *THE PERSISTENCE OF POVERTY* 67-81, 127-29 (2007).

³⁵ Although risk is colloquially associated primarily with negative events, its economic meaning refers to variance, whether positive or negative. See, e.g., Kades, *supra* note 3, at 1496 & n.17.

³⁶ There are some practical limits on the availability of REVEs. For example, insurance will not be a realistic possibility if the event in question will produce widespread correlated losses, as in the case of a nuclear war. See, e.g., Priest, *supra* note 3, at 1540.

³⁷ Variations would be possible in which the expected value is paid or received only in those states of the world in which a given event does not occur. See, e.g., Friedman, *supra* note 27, at 84.

we can safely omit that factor from this stage of the analysis.³⁸ More problematic is the fact that the transaction itself, by altering who bears the risk, may also alter the amount of the expected loss or gain—a point that relates to moral hazard, taken up below.³⁹

A more foundational wrinkle is that even the most basic and familiar REVE, insurance, often does not involve literally offloading potential losses (which may be nonpecuniary in nature), but rather contracting for a set of monetary payouts that will be triggered by particular losses.⁴⁰ We can keep the analysis simple by imagining there is a single event, *R*, that will occur with some known probability—the cosmic equivalent of drawing a red ball from an urn.⁴¹ *R* may already generate consequences for an individual, *Ida*. These consequences could be given by nature (as where *R* is *Ida*’s broken arm), the product of embedded legal arrangements (as where *R* is someone else’s broken arm for which tort law makes *Ida* liable), or both (as where *R* delivers *Ida* both a broken arm and some amount of compensation).⁴² Or *R* might be some event that currently carries no consequences for *Ida*, such as the outcome of a horse race on which *Ida* has not yet placed any bets. In any of these situations, *Ida* might prefer not to simply accept the consequences (or lack thereof) that *R* produces for her in the baseline situation. She might wish to buy or sell tickets that attach new consequences to, or remove existing consequences from, *R*’s occurrence.⁴³

If *Ida* would like to attach a positive consequence to *R*’s occurrence, such as a payout of money, or would like to detach a negative consequence from *R*’s occurrence, such as liability to pay someone else money, she must pay the expected value of that consequence.⁴⁴ If, on the other hand, *Ida* wants to detach a positive consequence from *R*’s occurrence, such as money that would ordinarily come to her when *R* happens, or attach a negative consequence to *R*’s occurrence, such as liability to pay someone else, she will be entitled to receive the expected value equivalent of the consequence.⁴⁵ Either way, she is engaging in a REVE—an exchange of expected value for risk.

From *Ida*’s perspective, then, there are “event-enhancing REVEs” that cost her money and improve the consequences tied to a probabilistic event like *R* (whether by

³⁸ These costs may, however, bear on the choice of a default risk allocation. See *infra* Part IV.C.1.

³⁹ See *infra* Part III.B.1. I thank Nadia Nasser-Ghodsí for comments on this point.

⁴⁰ Insurers, after all, can only pay with money. See, e.g., Priest, *supra* note 3, at 1546; Croley & Hanson, *supra* note 3, at 1797.

⁴¹ Similar hypotheticals involving draws from urns have been given to participants in research on risk and insurance. See Slovic et al., *supra* note 23, at 54-55.

⁴² *R* could also be an event that will carry consequences that are positive for *Ida*.

⁴³ See HOWARD KUNREUTHER, DISASTER INSURANCE PROTECTION: PUBLIC POLICY LESSONS 47 (1978) (describing insurance and similar devices as “tickets that can be cashed in for money if certain states of nature occur”).

⁴⁴ Suppose there is a ten percent chance of *R*. Under conditions of perfect competition and zero administrative costs, *Ida* could pay \$100 for a ticket that pays out \$1000 if *R* happens (and zero if it does not happen), or that, alternatively, relieves her of \$1000 of liability associated with the occurrence of *R*.

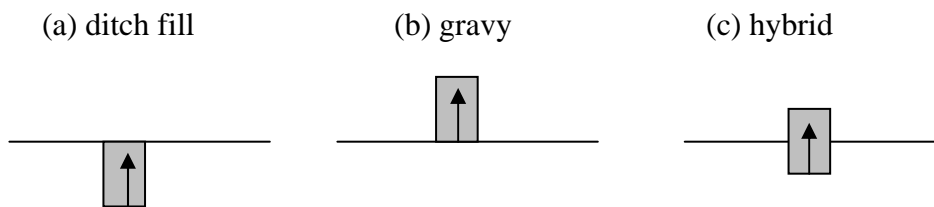
⁴⁵ Continuing with the example in note 44, *supra*, *Ida* might receive \$100 in exchange for issuing a ticket that entitles its bearer to receive \$1000 (from *Ida*, or from whoever would have previously had to pay *Ida*) upon the occurrence of *R*.

adding a positive consequence or detaching a negative one) and “event-detracting REVEs” that deliver cash but worsen the consequences for her of an event like R (whether by tying her future liability to R or removing some positive consequence that was previously bundled with R). Of course, the party on the other side of the monetary transaction incurs or enjoys a converse change in the consequences of event R. Thus, the terms “event-enhancing” and “event-detracting” refer to two sides of the same transaction, not to distinct transaction types.

1. Enhancements and Detractions

It is easy to tell whether Ida is paying out dollars or receiving dollars, and hence easy to tell whether the REVE is (from her perspective) event-enhancing or event-detracting. But this fact does not tell us everything we need to know about the transaction. To see why, suppose Ida makes an expected value payment to improve the consequences attaching to event R. Depending on what R represents, that improvement might take any of the forms schematically shown in Figure 1.⁴⁶

Figure 1:
Event Enhancements



First, as shown in Figure 1(a), Ida might be purchasing protection against the risk of loss from her current baseline, as with fire insurance. Her expected value payment gives her the right to receive a sum that will offset a loss delivered up by nature; the payoff will fill in a ditch that this event will leave in her wealth.⁴⁷ Second, as shown in Figure 1(b), Ida might make an expected value payment to buy a chance at an upside gain, as with a lottery ticket.⁴⁸ Third, as shown in Figure 1(c), Ida might purchase a blended product with her expected value payment, as implicitly occurs under a products liability regime

⁴⁶ The possibilities depicted in the figures in this subpart are not exhaustive. In addition to many intermediate cases between those shown, REVEs might *intensify* rather than offset above- or below-baseline impacts already associated with R. See Cooter & Porat, *supra* note 3; text accompanying note 127, *infra*. It is also important to clarify that the figures in this subpart depict *only* the alteration in consequences associated with event R, and not the expected value payment that was paid or received to bring it about.

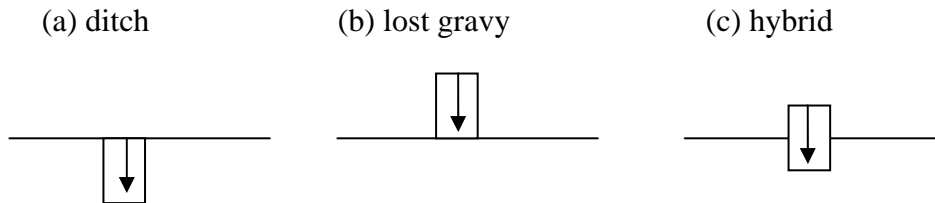
⁴⁷ The question of what constitutes a “ditch” in this context is not always straightforward. See text accompanying notes 54-55, *infra*.

⁴⁸ Such a “pure gamble” falls somewhat outside the core concerns of this paper, but it offers an intuitive image of an above-baseline REVE.

featuring punitive damages. As commentators have noted, punitive damage multipliers effectively force consumers to purchase lottery tickets along with their products or services.⁴⁹ In such a case, the expected value payment made as part of a consumer's purchase entitles her both to payments that will “backfill” her injuries and to a chance at additional “gravy.”

A similar range of possibilities exists when Ida receives an expected value payment in exchange for accepting unfavorable consequences if R occurs. As shown in Figure 2, this trade may leave her vulnerable to an unfilled ditch, as shown in 2(a), may merely expose her to the loss of a possible gain, as in 2(b), or may do a bit of both as shown in 2(c).

Figure 2:
Event Detractions



Given the conceptual symmetry between the event-enhancing and event-detracting sides of REVEs, it is noteworthy that individual consumers and households have limited opportunities to engage in explicit event-detracting REVEs,⁵⁰ while explicit event-enhancing REVEs (insurance and lotteries) are familiar features of the economic landscape. The explanation cannot simply be that society is unwilling as a general matter to allow people to be exposed to “ditches.” People are allowed to remain uninsured against many risks that could dramatically reduce their well being. Indeed, they are routinely allowed to engage in transactions that contain event-detracting REVEs embedded within them.⁵¹ Moreover, as Figure 2 illustrates, event-detracting REVEs can involve selling chances at lucky gains rather than selling coverage of unlucky losses.⁵²

⁴⁹ See, e.g., Richard Craswell, *Deterrence and Damages: The Multiplier Principle and Its Alternatives*, 97 MICH. L. REV. 2185, 2230 (1999) (“In effect, the introduction of a multiplier turns the liability component of the price into a lottery ticket, with a bigger price up front supporting the chance of a bigger payoff at the end”); RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* 211-12 (2008) (“patients are effectively forced to buy a kind of lottery ticket, one that might be worth anything from millions of dollars to nothing”).

⁵⁰ Some exceptions are discussed in Part II, *infra*.

⁵¹ This occurs, for example, whenever an individual accepts a less safe product or service at a lower price, takes a less safe job at a higher wage, or gives up a variable future income stream in exchange for a more certain one through an employment contract.

⁵² See, e.g., Kades, *supra* note 3, at 1496-1501 (examining the potential for the ex ante transfer of chances at windfalls through “reverse insurance” or a societal equivalent). Governmental mandates can produce the same risk endstate as a voluntary transaction to cede upside chances. See, e.g., RICHARD A. EPSTEIN, *CASES AND MATERIALS ON TORTS* 915 (9th ed. 2008) (describing “split-award” statutes that require some fraction of punitive damages awards to be paid to the state); Christine Hurt, *The Windfall*

This last point is taxonomically crucial, and points to a second way of dividing up REVEs.

2. Upside and Downside Risk

As Figures 1 and 2 illustrate, knowing the direction in which the expected value payment flows tells us only whether a given REVE is event-enhancing or event-detracting; it does not tell us whether that REVE involves upward or downward departures from a given baseline. For the same reason, event-detracting REVEs do not necessarily increase risk. One event-detracting REVE may increase the variance in possible outcomes by letting a ditch stand unfilled in one state of the world, while another may instead reduce the variance in possible outcomes by eliminating the chance of a lucky gain. Similarly, event-enhancing REVEs may either increase variance by boosting consequences from a baseline state of the world or decrease variance by delivering a payment that offsets a potential loss.

Of course, the baselines depicted in Figures 1 and 2 are malleable, and the question of whether some event leaves one with a “ditch” or merely fails to generate “gravy” is open to interpretation and sensitive to framing.⁵³ For example, suppose a worker purchases wage-replacement insurance that will pay out at an escalating annual rate designed to match her anticipated future wage trajectory in the event that she loses her capacity to continue in her present job. Has this worker insured against a loss or gambled for a gain? The answer depends on whether the relevant baseline features no future salary payments at all, salary payments that continue indefinitely at present levels, salary payments that escalate over time in accordance with the worker's projected earning profile, or some other earnings pattern.

Another ambiguity is whether baseline states (and moves from them) should be defined in terms of utility or wealth. Not all losses that negatively affect utility negatively affect wealth.⁵⁴ Choosing the right metric requires deciding why we care about the distinction between upside and downside risk. As we will see, low wealth levels may lead to claims on societal resources, making unremediated “money ditches” a matter of particular concern. Conversely, because standard economic theory dictates that it is irrational to insure against utility drops that do not increase the marginal utility of money,⁵⁵ we would expect society to pay less attention to “utility ditches.” As a

Myth, University of Illinois Law & Economics Research Paper No. LE09-023 (2009) available at <http://ssrn.com/abstract=1456466>, at 3 n.12 (discussing Georgia's statutory provision reassigning 75% of punitive damage awards to the state).

⁵³ See, e.g., Amos Tversky & Daniel Kahneman, *The Framing of Decisions and the Psychology of Choice*, 211 SCI. 453 (1981).

⁵⁴ See, e.g., Cooter, *supra* note 4, at 388-92 (distinguishing “wealth impacting” from “wealth neutral” losses); text accompanying notes 27-29, *supra*.

⁵⁵ See, e.g., Zeckhauser, *supra* note 24, at 157 (stating that insuring against situations in which utility is low “is desirable only if the marginal utility of money is higher in the low-utility situation”); see also text accompanying notes 23-34, *supra* (describing this conventional view and some critiques of it).

descriptive matter, however, even utility ditches that do not increase the marginal utility of money may be framed as losses against which protection is sought by risk-averse individuals, whether for consolation reasons or otherwise.⁵⁶

Despite these complications, it remains helpful to add a second distinction that cross-cuts the event-enhancing/event-detracting dichotomy outlined above. We can distinguish between REVEs that deal in downside or “ditch” risk, like those shown in Figures 1(a) and 2(a), and those that deal in upside or “gravy” risk, like those shown in Figures 1(b) and 2(b). Putting the two distinctions together as shown in Figure 3 reveals that an individual can use REVEs to engage in four basic moves.⁵⁷ These four intuitive moves map onto the buying and writing of call and put options, respectively⁵⁸—transactions that are routinely and symmetrically used by business entities to rearrange risk.⁵⁹ While these same four logical possibilities are open, in theory, to individuals, actual risk trading opportunities are far more limited.

Figure 3: Four Basic Moves (Individual’s Perspective)

| | Downside “Ditch” Risk | Upside “Gravy” Risk |
|--|--|---|
| Individual Pays EV Event-Enhancing | I. Reducing Downside Risk Buying a Claim to Coverage of Losses (e.g., Insurance) | III. Increasing Upside Risk Buying a Chance at a Gain (e.g., Lottery Ticket) |
| Individual Receives EV Event-Detracting | II. Increasing Downside Risk Selling One’s Claim to Coverage of Losses (e.g., Unmatured Tort Claim) | IV. Reducing Upside Risk Selling One’s Chance at a Gain (e.g., Nobel Prize Winnings) |

Individuals regularly shed downside risk by buying insurance (cell I) and can take on upside risk by, for example, buying lottery tickets (cell III).⁶⁰ Less familiarly, an individual who is already covered by insurance or by societal arrangements that spread risk might engage in a cell II transaction—receiving money in order to accept exposure to

⁵⁶ See text accompanying note 33, *supra*; Tversky & Kahneman, *supra* note 53.

⁵⁷ The examples provided in the cells of Figure 3 are tailored to fit an individual’s perspective, but parties taking the other sides of these REVEs (insurers, reverse insurers, manufacturers, and so on) also engage in these same basic moves.

⁵⁸ Specifically, cell I equates to buying a put option, cell III equates to buying a call option, cell II equates to writing a put option, and cell IV equates to writing a call option. A similar four-square depiction of calls and puts (with minor layout differences) appears in ROBERT TOMPKINS, *OPTIONS EXPLAINED* 14 tbl. 1.2 (1991).

⁵⁹ I do not mean to suggest that calls and puts enable entities to perfectly hedge all risks in all contexts, only that they offer useful and ubiquitous platforms for attempting to do so.

⁶⁰ See Kenneth J. Arrow, *Alternative Approaches to the Theory of Choice in Risk-Taking Situations*, in *ESSAYS IN THE THEORY OF RISK-BEARING*, *supra* note 1, at 4-6 (discussing the examples of “[g]ambling and insurance” as well as other phenomena that involve uncertainty less directly or obviously).

those risks.⁶¹ Likewise, an individual could sell off her claim to a chance at a gain that may be delivered by law, policy, effort, or nature, as shown in cell IV. Although chances at true “windfalls” represent one incarnation of these claims,⁶² transactions might also involve claims to positive outcomes that are the product of merit or effort (selling one’s chance at winning the Nobel Prize, or a share of one’s future earnings in some creative or athletic pursuit).⁶³

Hybrid transactions are possible that draw from both of the columns in Figure 3. As illustrated by Figures 1(c) and 2(c), people often hold rights to payments that are triggered by losses, but that do more than cover those losses. For example, if one were to sell one’s unmatured tort claim in its entirety, this would involve both a shedding of upside risk and an acceptance of downside risk—although the “ditch” and “gravy” components of such transactions might be disaggregated.⁶⁴ Hybrid transactions can also combine cells I and IV, as where an individual sells rights to the future appreciation of her home, using part of the proceeds to purchase protection against downside home value risk.⁶⁵ Similarly, cells II and III might be combined in a transaction that amplifies both upside and downside risk. Consider, for example, an employee who accepts a higher risk of job loss in exchange for a higher salary (cell II) but who funnels that additional money into options in the company that will enable her to share in its upside returns (cell III). In this case, the expected value payment that the individual receives for taking on more exposure would help to fund the upside claim she purchases.

C. “Triangular” Risk Configurations

So far, I have examined REVEs from the perspective of an individual without considering the identity of the counterparty. REVEs can pass risk back and forth between two parties to a risky interaction, such as a potential victim and a potential injurer. The involvement of a third party insurer or reverse insurer, however, facilitates additional arrangements in which both parties are effectively insured against, or exposed to, risk.⁶⁶

⁶¹ This move is well captured by the phrase “reverse insurance,” but that moniker has also been applied to cell IV transactions. See Kades, *supra* note 3. Similarly, the term “anti-insurance” has been applied to both cell II and cell III transactions. See Cooter & Porat, *supra* note 3 (discussing anti-insurance for losses and for gains).

⁶² See Kades, *supra* note 3, at 1491 (defining “windfalls as economic gains independent of work, planning, or other productive activities that society wishes to reward”); see also Hurt, *supra* note 52 (providing a taxonomy of windfalls and analyzing the use of the word).

⁶³ See Part II.D, *infra*.

⁶⁴ For example, it would be possible for parties to selectively sell portions of their unmatured tort claims, or selectively replace portions of the alienated coverage with first-party insurance. See Cooter, *supra* note 4, at 384-85; *id.* at 387.

⁶⁵ See *infra* Part II.C.1. Financial “collars” that combine a call and a put to narrow the possible range of returns are a familiar example of a hybrid transaction combining cells I and IV.

⁶⁶ I will focus here on third parties who enter the picture as insurers or reverse insurers. Another possibility, which I do not discuss, would be for the law to place liability on unrelated third parties as a default matter, thus inducing them to initiate deals with the parties who are in a better position to control accidents. See CALABRESI, *supra* note 3, at 136 (considering the implications of assigning the loss of car-

To reach the “both insured” state, the party that the law has left exposed to the risk must procure insurance. If losses are left to fall on the injurer, the injurer can obtain third-party insurance to cover those losses. If losses are left to fall on the victim, the victim can obtain first-party insurance. The potential advantages of the “both insured” end state are fairly intuitive: both parties to an interaction may be risk averse, or may have other reasons for wishing to carry insurance.⁶⁷

To reach the “both exposed” state, the party that the law has effectively insured against the risk must procure reverse (or “anti-”) insurance.⁶⁸ Thus, if the law places losses on injurers, prospective victims could sell their potential claims and accept exposure to any actual losses they may suffer.⁶⁹ Likewise, if the law leaves the loss on victims, potential injurers could contract with a third party reverse insurer to pay it amounts keyed to the losses actually suffered by the victims, in exchange for an expected value payment. By making side-bets with one of the parties, the reverse insurer brings about an end-state in which losses effectively fall *both* on victims and on injurers.⁷⁰ That such a “both exposed” regime can enhance efficiency has been intriguingly analyzed by Robert Cooter and Ariel Porat,⁷¹ and follows from Cooter's earlier explorations of “double responsibility at the margin.”⁷² By driving a wedge between what the injurer pays and what the victim receives, reverse insurance restores incentives that might otherwise be dulled by a legal system that assigns the loss to only one of the parties.⁷³

Triangular arrangements are important to a discussion of risk unbundling for at least two reasons. First, because unbundling risk from background societal arrangements is a prerequisite to transacting over it with a third party, the advantages associated with triangular arrangements highlight the potential suboptimality of attempting to adjust risk exposure purely through bundled consumption or activity choices. Second, as explained

pedestrian accidents to “an arbitrary third party, e.g., television manufacturers”).

⁶⁷ For a recent discussion of why risk neutral corporations nonetheless buy insurance, see Victor P. Goldberg, *The Devil Made Me Do It: The Corporate Purchase of Insurance*, 5 REV. LAW & ECON., Iss. 1, Art. 22 (2009) available at <http://www.bepress.com/rle/vol5/iss1/art22>.

⁶⁸ See *supra* note 3.

⁶⁹ See *supra* Part II.B.1.

⁷⁰ The textual discussion assumes that victims and injurers are not able to collude with each other. An incentive for collusion exists, because third-party reverse insurance makes the victim and the injurer collectively responsible for twice the loss, while their collective exposure to the loss in the absence of the reverse insurer is half that amount. For example, suppose victim A is injured after assigning her claim to reverse insurer C in a world where B would ordinarily be liable to A. If A and B can keep C from learning about the injury, B can pay A some positive amount that is less than what he would ordinarily have to pay on the claim, and both will be better off. See Cooter & Porat, *supra* note 3, at 215-16 (discussing this and other collusion risks associated with anti-insurance).

⁷¹ Although Cooter & Porat focus primarily on the contract context, they briefly explore how their ideas might apply to tort. Cooter & Porat, *supra* note 3, at 225-26.

⁷² Robert Cooter, *Unity in Tort, Contract, and Property: The Model of Precaution*, 73 CAL. L. REV. 1, 3-4 (1985); see also Coase, *supra* note 6, at 41 (suggesting a “double tax system” that would impose charges on both parties to a land use dispute).

⁷³ The law could, of course, delink collections from injurers and payments to victims, whether to reach a “both exposed” state or for other reasons. See CALABRESI, *supra* note 3, at 22-23.

below, triangular risk configurations can help to address some of the concerns associated with REVEs.⁷⁴ The counterintuitive implication is that objections to risk transactions can sometimes be met by expanding, rather than contracting, opportunities to transact over risks.

II. REVES, REAL AND IMAGINED

The basic moves identified above can be combined in numerous ways to form REVEs that range from the ubiquitous to the exotic. Insurance and lotteries are familiar REVEs, and, at least when offered explicitly, are easy to identify. But many REVEs occur, or might occur, outside of these contexts. Risks are of course pervasively shifted through the stock market.⁷⁵ Contractual arrangements also inevitably allocate risk, whether through default rules or through shifts from them.⁷⁶ Examples of less familiar REVEs for modifying personal and household risks follow, some of which have been implemented or proposed. The list is not comprehensive, but merely suggestive of the range of possibilities. Because my focus in this Part is on illustrating risk rearrangements rather than evaluating them, the brief descriptions here do not attempt to catalogue, much less address, the many considerations that would bear on the normative desirability or feasibility of these instruments.

A. *Matters of Life and Death*

Life insurance and annuities, transactions that might be viewed from the individual's perspective as falling into either cell I or III,⁷⁷ are the most familiar ways to address life and death risk. But other possibilities exist. For example, viatical and life settlements⁷⁸ permit an elderly or ill holder of a life insurance policy to sell the right to receive the

⁷⁴ See *infra* Part IV.B.2.

⁷⁵ See, e.g., Arrow, *Insurance*, *supra* note 1, at 138-39 (noting shortcomings in the stock market's risk-shifting capacities). Although derivatives and other vehicles for slicing and repackaging risk have addressed some of the gaps that Arrow identified, these devices have suffered from implementation problems of their own, as the ongoing financial crisis illustrates.

⁷⁶ See, e.g., Arrow, *Insurance*, *supra* note 1, at 136-37 (noting that to the extent contracts involve the future, they always involve risk). Some reasons that efficient risk-shifting away from a contractual default may fail to occur are discussed in Korobkin, *supra* note 13, at 619-21. See also *id.* at 633-64 (presenting results of an experiment designed to test the status quo bias as it applies to contract default terms, including those governing consequential damages and impossibility, respectively).

⁷⁷ Which cell to slot the arrangement into depends on whether the loss of life (or, in the case of annuities, longevity) will create the kind of ditch to which money can respond, or whether the proceeds instead represent a kind of gravy that leaves the recipient better off in monetary terms. See, e.g., *It's a Wonderful Life* (Liberty Films, 1946) (featuring a distraught George Bailey who takes to heart Mr. Potter's assessment that he is "worth more dead than alive").

⁷⁸ "Viatical settlement" refers to the sale of a life insurance policy by a terminally ill person, while "life settlement" or "senior settlement" refers to the sale of a life insurance policy by a senior citizen. See, e.g., Jessica Maria Perez, Note, *You Can Bet Your Life on It! Regulating Senior Settlements to Be a Financial Alternative for the Elderly*, 10 ELDER L.J. 425, 430 (2002).

proceeds of that policy for an immediate lump sum.⁷⁹ From the policyholder's perspective, these transactions correspond to either cell II or IV.⁸⁰ Another life-and-death REVE is the tontine, a form of life insurance that bestows deferred dividends on individuals who survive beyond a set period, paid from the premiums that policyholders as a group contribute.⁸¹ Freestanding bets on one's own survival to a date certain are also possible.⁸² These transactions, too, might be viewed as corresponding to cell I or cell III.

Steven Croley and Jon Hanson discuss a transaction that would arguably fall into cell IV: "disinsurance" in which parents would receive a lump sum upon the birth of a child but take on the obligation to make a much larger payment to the disinsurer in the event that the child dies before the age of eighteen.⁸³ As the authors explain, the fact that parents typically experience lower financial burdens after a child dies amounts to a kind of implicit life insurance carried on the child; the death comes bundled not with an explicit payout from an insurer, but with significant cost savings that amount to the same thing.⁸⁴ If the money that becomes newly available after a child's death carries lower marginal utility than would money available while the child is alive, then there is an efficiency argument for moving money from the state of the world in which the child is dead to the state of the world in which the child is alive.⁸⁵ On one view, at least, such a move amounts to selling "gravy" in the state of the world in which the child has died, where the bounty will be less appealing.

⁷⁹ See, e.g., *id.* at 429. The investor also pays any remaining premiums that come due on the policy. *Id.* The financial crisis has heightened demand for these transactions. See, e.g., Jennifer Hodson, *Clients Cash in Policies—Life-Settlement Industry Sees Growth as People Seek Funds*, WALL ST. J., Feb. 4, 2009. Although these mechanisms have been criticized, the fact that they allow an investor to profit from an individual's death does not distinguish them from annuities. See Alvin E. Roth, *Repugnance as a Constraint on Markets*, 21 J. ECON. PERSP. 37, 41 (2007).

⁸⁰ Again, the classification depends on what the effect of the foregone proceeds would have been. See *supra* note 77.

⁸¹ Tontines, named for Lorenzo de Tonti, have taken a variety of forms throughout history but always grant their shareholders some benefit by virtue of survival. See, e.g., Kent McKeever, *A Short History of Tontines* (2009) available at <http://ssrn.com/abstract=1340062>. In its most dramatic incarnation, group members contributed to a fund that went to the last individual to survive. *Id.* at 1; Baker & Siegelman, *supra* at 7; see also ROBERT LOUIS STEVENSON, *THE WRONG BOX* (1889). A form of tontine life insurance that paid out for survival as well as for death evolved in the United States in the 19th century. See McKeever, *supra* at 12-15; Tom Baker & Peter Siegelman, *Enticing Low Risks into the Health Insurance Pool: Tontines for the Invincibles and Other Ideas from Insurance History and Behavioral Economics*, U Pa. Law School Inst. for Law & Econ., Research Paper No. 09-07 (2009), available at <http://ssrn.com/abstract=1350423>, at 3, 5-7. Baker and Siegelman propose adapting the tontines idea of deferred dividends to the health insurance arena. See generally Baker & Siegelman, *supra*.

⁸² See, e.g., BBC News, *Dying Man Wins Bet He Would Live*, May 30, 2009, http://news.bbc.co.uk/2/hi/uk_news/england/beds/bucks/herts/8075288.stm; Rachael Emma Silverman, *Letting an Investor Bet on When You'll Die*, WALL ST. J., May 26, 2005.

⁸³ Croley and Hanson, *supra* note 3, at 1885; see also *id.* n.367 (discussing variations on this idea, including an annuity that pays out only if the child survives to the age of 18).

⁸⁴ See *id.* at 1885.

⁸⁵ See text accompanying notes 23-29, *supra*; see also Croley & Hanson, *supra* note 3, at 1885 (suggesting that the unavailability of markets in this form of disinsurance offers some evidence that parents prefer the implicit insurance against the death of a child that inheres in the cost savings accruing to parents

B. Legal Claims and Liabilities

1. Selling (and Settling) Legal Claims

Legal claims are effectively sold whenever the parties to a lawsuit (or potential lawsuit) settle among themselves; for plaintiffs, these transactions typically combine cells I and IV by simultaneously truncating upside and downside risk. Liability waivers, which may be viewed as combining cells II and IV,⁸⁶ also represent a familiar (if often legally unavailable) vehicle for reversing tort law's default risk allocation between potential injurers and potential victims.⁸⁷ But legal risks could also be addressed through REVEs that involve third parties and that encompass transactions that occur prior to any point of injury or exposure.⁸⁸ For example, a number of scholars have advocated markets in "unmatured" tort claims.⁸⁹ These proposals contemplate the sale of potential claims to third parties who would be entitled to collect on behalf of the victim in the event he is injured.⁹⁰ Advocates of markets in unmatured tort claims have typically prescribed specific limits on these transactions, such as a requirement that would-be victims first secure adequate first-party insurance.⁹¹ The initial sale of the tort claim would combine

following such a death).

⁸⁶ See text accompanying *supra* note 49.

⁸⁷ For discussion of liability waivers and the legal limitations on them, *see, e.g.*, Mark A. Geistfeld, *The Value of Consumer Choice in Products Liability*, NYU Public Law & Legal Theory Research Paper No. 09-25 (April 2009), at 20-21 available at <http://ssrn.com/abstract=1396377>; Note, *Enforcing Waivers in Products Liability*, 69 VA. L. REV. 1111 (1983); Richard C. Ausness, "Waive" Goodbye to Tort Liability: A Proposal to Remove Paternalism, 37 SAN DIEGO L. REV. 293 (2000).

⁸⁸ Transactions could also occur between the point of exposure and the manifestation of harm. *See* Yair Listokin and Kenneth Ayotte, *Protecting Future Claimants in Mass Tort Bankruptcies*, 98 NW. U. L. REV. 1435, 1474-75 & n.183 (2004) (discussing asbestos exposure as presenting "inchoate claims," the settlement of which would constitute a form of "anti-insurance"); *see also* Ariel Porat & Alex Stein, *Liability for Future Harms*, in PERSPECTIVES ON CAUSATION (Richard S. Goldberg, ed., forthcoming 2010), available at <http://ssrn.com/abstract=1457362>, manuscript at 26-27 (proposing that victims be allowed to choose compensation for future harm over compensation for realized harm, in part because this would enable them to make use of money in a state of the world where they are healthy).

⁸⁹ *See, e.g.*, sources cited in *supra* note 4; Robert Cooter & Stephen D. Sugarman, *A Regulated Market in Unmatured Tort Claims: Tort Reform by Contract*, in NEW DIRECTIONS IN LIABILITY LAW 174 (Walter Olsen ed., 1988); STEPHEN D. SUGARMAN, DOING AWAY WITH PERSONAL INJURY LAW: NEW COMPENSATION MECHANISMS FOR VICTIMS, CONSUMERS, AND BUSINESS 202-10 (1989). For critiques, *see, e.g.*, Alan Schwartz, *Commentary on "Towards a Market in Unmatured Tort Claims": A Long Way Yet to Go*, 75 VA. L. REV. 423 (1989); Charles J. Goetz, *Commentary on "Towards a Market in Unmatured Tort Claims": Collateral Implications*, 75 VA. L. REV. 413 (1989).

⁹⁰ This does not necessarily mean that the purchaser would actually end up pursuing a claim if an injury later occurred. For example, some proposals contemplate that the unmatured claims would be purchased by employers and resold in blocks to potential injurers and their insurers, thus "presettling" large numbers of potential claims. *See* SUGARMAN, *supra* note 89, at 202-03; Cooter & Sugarman, *supra* note 89, at 176; *see also* O'Connell, *supra* note 4, at 699-700 (observing that if two parties owned a number of claims against each other, they could settle them all in a single "bulk settlement").

⁹¹ *See* SUGARMAN, *supra* note 89, at 204; Cooter & Sugarman, *supra* note 89, at 178; Cooter, *supra* note 4, at 401-02. An earlier proposal by Jeffrey O'Connell framed the sale of unmatured tort claims as a way to finance first-party no-fault insurance. Jeffrey O'Connell, *Harnessing the Liability Lottery: Elective First-Party No-Fault Insurance Financed by Third-Party Tort Claims*, 1978 WASH. U. L. Q. 693 (1978);

cells II and IV, while the purchase of first-party insurance would undo the cell II component through a cell I move.

Although scholarship on unmatured tort claims focuses on transactions involving potential plaintiffs, it would also be possible for potential defendants to engage in parallel transactions from a baseline in which they are shielded from liability. Suppose that the law placed losses by default not on specific injurers, but instead spread the risk of loss more broadly through a social insurance system funded by contributions from all potential injurers.⁹² In such a regime, a potential injurer might wish to make a deal in which it receives from the social insurer (or a third party reverse insurer) a payment equal to the expected value of the injuries it will cause, agreeing in exchange to pay an amount equal to the losses that it (the potential injurer) actually ends up inflicting on the victim.⁹³ This would be a cell II move.

After the event giving rise to liability occurs and a “matured” legal claim exists, litigation risk remains that both plaintiffs and defendants might transact over with third parties.⁹⁴ REVEs might also occur after final judgment to alter the risk allocation embedded in the relief awarded, as explained below.

2. Tort Remedies

The use of damages to remedy a nuisance represents an interesting example of a risk allocation embedded within a legal outcome. Suppose that the law entitles a homeowner to be free of smoke emanating from a neighboring factory, but protects that entitlement only with a liability rule.⁹⁵ If we assume (as is typically the case) that stochastic factors determine whether and to what extent the emissions of the factory translate into realized harm for the homeowner, then risk is allocated differently if the homeowner is

see also Jeffrey O’Connell & Janet Beck, *Overcoming Legal Barriers to the Transfer of Third-Party Tort Claims as a Means of Financing First-Party No-Fault Insurance*, 58 Wash. U. L. Q. 55 (1980). Insurance subrogation represents a existing, limited way in which certain tort claim rights are transferred in exchange for less expensive first-party insurance covering the same risks. I thank Frank Easterbrook for raising this point.

⁹² New Zealand’s system fits this model. A government agency, the Accident Compensation Corporation, provides “no fault” coverage to accident victims, drawing on accounts funded by various taxes and levies. See <http://www.acc.co.nz/index.htm>; Peter H. Schuck, *Tort Reform, Kiwi-Style*, 27 YALE L. & POL’Y REV. 187 (2008).

⁹³ Like reverse insurance procured by potential victims in a regime that holds injurers liable, this arrangement produces exposure for both parties. See Cooter & Porat, *supra* note 3, at 225; text accompanying notes 38-44, *infra*.

⁹⁴ See, e.g., Michael Abramowicz, *On the Alienability of Legal Claims*, 114 YALE L.J. 697 (2005); Jonathan T. Molot, *A Market in Litigation Risk*, 76 U. CHI. L. REV. 367 (2009); Jonathan D. Glater, *Investing in Lawsuits, for a Share of the Awards*, WALL ST. J., June 3, 2009. The sale of a matured legal claim, which involves shifting the risk associated with pursuing that claim, must be distinguished from the sale of a right to a future stream of income (“factoring”) in a structured settlement of a claim. See, e.g., Adam F. Scales, *Against Settlement Factoring? The Market in Tort Claims Has Arrived*, 2002 WIS. L. REV. 859, 899-99 (describing these transactions).

⁹⁵ See Calabresi & Melamed, *supra* note 18, at 1092, 1115-16.

compensated for realized harm than if she is compensated ex ante for expected harm.⁹⁶

If we start with a legal regime that permits the homeowner to collect based on realized harm, allowing her to opt instead for an upfront payment of permanent damages represents an event-detracting move that detaches compensation from the realization of harm (cell II). Conversely, the defendant purchases an event enhancement by detaching liability from an otherwise covered event (cell I). Alternatively, a legal regime might begin at this endpoint, with permanent damages as the default remedy. In that case, the defendant might take on risk (cell II) either by selling coverage directly to the plaintiff⁹⁷ or by negotiating with a third party reverse insurer. Similarly, the plaintiff might shed risk in such a world (cell I) by purchasing coverage either directly from the defendant or from an insurer. If the conferral of positive externalities could give rise to liability,⁹⁸ cell III and IV transactions paralleling those detailed above could likewise rearrange the law's default allocation of upside risk.⁹⁹

3. Legal Changes

We might expect people to be interested in insuring against or hedging legal changes that would significantly affect their lives. Prediction markets keyed to tax law changes and other legislative changes have already emerged.¹⁰⁰ Scholarship has also examined the potential for private insurance against governmental takings.¹⁰¹ Policies offered by the World Bank Group's Multilateral Investment Guarantee Agency represent another tool for managing the risk of legal change, insuring investors against certain governmental acts and omissions, as well as war and civil unrest.¹⁰² To the extent the change in

⁹⁶ See, e.g., Lee Anne Fennell, *Property and Half-Torts*, 116 YALE L.J. 1400, 1468-69 (2007).

⁹⁷ "Selling coverage" in this context means that the defendant retains the permanent damages that she would otherwise pay to the plaintiff and agrees in exchange to cover any actual harm from her activities that materializes.

⁹⁸ A recent paper detailing the existing limits on liability for unrequested benefits and proposing an "expanded duty of restitution" is Ariel Porat, *Private Production of Public Goods: Liability for Unrequested Benefits*, 108 MICH. L. REV. 189 (2009).

⁹⁹ Suppose a legal regime makes neighbor A liable for part of the cost of a fence constructed by neighbor B if that fence bestows benefits on A. That liability might be operationalized in either of the following ways: (1) neighbor A might be required to pay when an appraisal upon resale establishes that value has been added, or (2) A might be required to pay upfront for the expected value added. The former arrangement leaves on B the risk that the benefits will not materialize, while the latter places that risk on A. Either arrangement could be reversed using cell III and IV REVEs.

¹⁰⁰ See Intrade Predictions Markets, <http://www.intrade.com> (listing contracts for changes in U.S. tax rates and for the establishment of a cap and trade system); see also Posting of Jason Ruspini to Risk Markets and Politics, <http://riskmarkets.blogspot.com/2008/02/tax-futures-reality.html> (Feb. 6, 2008, 23:55).

¹⁰¹ See, e.g., Steve P. Calandrillo, *Eminent Domain Economics: Should "Just Compensation" Be Abolished, and Would "Takings Insurance" Work Instead?*, 64 OHIO. ST. L.J. 451, 499-521 (2003); Eric Kades, *Avoiding Takings "Accidents": A Torts Perspective on Takings Law*, 28 U. RICH. L. REV. 1235 (1994); Louis Kaplow, *An Economic Analysis of Legal Transitions*, 99 HARV. L. REV. 509 (1986).

¹⁰² Multilateral Investment Guaranty Agency: Types of Coverage, http://www.miga.org/guarantees/index_sv.cfm?stid=1547 (offering insurance against "expropriation")

question is one that will have a negative financial impact on the individual seeking insurance, the transaction falls within cell I. It would also be possible for people to increase upside risk by betting on changes that will not affect them at all, or that will benefit them (cell III moves). Alternatively, where uncertain legal changes would have a positive effect, that effect could be dampened by selling rights to part or all of that potential gain (cell IV).

Transition relief (such as grandfathering, the recognition of vested rights, or compensation for governmental takings) amounts to embedded insurance against legal change.¹⁰³ Following the logic of unbundling, some people might wish to shed the implicit insurance provided by the law by receiving the expected value equivalent of that relief from the government up front (perhaps in the form of lower taxes or less onerous land use exactions) in exchange for greater exposure to the effects of future legal changes.¹⁰⁴ This would represent a cell II transaction, assuming the legal change would in fact inflict losses.

C. Homes

1. Housing Futures and Options

By default, the law leaves homeowners exposed to volatility in home values, most of which is governed by factors beyond their personal control. As a growing number of scholars, policymakers, and entrepreneurs have observed, many homeowners could benefit from offloading some of this risk.¹⁰⁵ There is both an upside and downside component of home value variance, as measured against the baseline of the original sales price, and each component could be separately adjusted. First, a homeownership household could purchase protection against downward price movements in the local housing market.¹⁰⁶ This would be a cell I REVE that works like ordinary first-party insurance—

(including “creeping expropriation”), governmental acts or omissions that make it impossible to convert or transfer currency, and losses from “war, terrorism, and civil disturbance”). I thank Nicole Garnett for alerting me to these policies.

¹⁰³ See, e.g., DANIEL SHAVIRO, WHEN RULES CHANGE 40-42 (2000); Kaplow, *supra* note 101, at 527-28; Lawrence Blume & Daniel L. Rubinfeld, *Compensation for Takings: An Economic Analysis*, 72 CAL. L. REV. 569, 571-72 (1984); see also Jonathan S. Masur & Jonathan Remy Nash, *The Institutional Dynamics of Transition Relief*, NYU L. Rev. (forthcoming 2010).

¹⁰⁴ For example, a number of scholars have noted that the government could pay landowners for “takings options” that would permit the government to condemn the land without paying just compensation. See, e.g., William A. Fischel & Perry Shapiro, *Takings, Insurance, and Michelman: Comments on Economic Interpretations of “Just Compensation” Law*, 17 J. LEGAL STUD. 269, 274 (1988) (describing and citing antecedent literature on this possibility).

¹⁰⁵ For an overview of past, proposed, and existing programs and products for rearranging homeownership risk, see generally Lee Anne Fennell, *Homeownership 2.0*, 102 NW. U. L. REV. 1047 (2008).

¹⁰⁶ See, e.g., Robert J. Shiller & Allan N. Weiss, *Home Equity Insurance*, 19 J. Real Estate Fin. & Econ. 21 (1999); Andrew Caplin et al., *Home Equity Insurance: A Pilot Project* (Yale Int’l Ctr. for Fin., Working Paper No. 03-12, May 3, 2003), available at http://ssrn.com/abstract_id=410141; Maureen A.

the homeowner pays out the expected value of any loss of home value attributable to downward market fluctuations and receives in exchange the right to an amount that will cover this loss in the event of such fluctuations.

Alternatively, or in addition, a household could sell the right to upside home appreciation. This event-detracting REVE could be characterized as a cell IV transaction involving “gravity”—rights to a gain—if the original sales price serves as the baseline. Of course, it is possible to frame things differently. If the homeowner will need to purchase other housing upon resale of the current house, we could characterize that need as a liability and potential price increases in that other housing as potential reductions in the homeowner's standard of living.¹⁰⁷ If the homeowner's future housing and present housing experience closely correlated price movements, then the appreciation realized on the present house looks something like an insurance payment designed to cover the threatened loss associated with price increases in future housing.¹⁰⁸ Selling the home's upside potential in this context would seem more like selling an insurance claim and accepting exposure (cell II).

2. Rental Price Insurance

Because tenants lack an equity stake in the properties in which they live, rising property values can lead to affordability shortfalls as rents rise. While the empirical record on the extent of involuntary displacement is complex and contested,¹⁰⁹ there is little doubt that fear of displacement and rising rental costs generate disutility, both for tenants and for others in their communities.¹¹⁰ These concerns would disappear if tenants could obtain what homeowners already have—an option to remain in place as long as they like at a fixed price.¹¹¹ Lengthy leases are one possibility, but these are costly for

McNamara, *The Legality and Efficacy of Homeowner's Equity Assurance: A Study of Oak Park, Illinois*, 78 NW. U. L. REV. 1463 (1984).

¹⁰⁷ Sinai & Souleles, *supra* note 8, at 763 (observing that “all households are in effect born ‘short’ housing services, since they have to live somewhere”).

¹⁰⁸ See Todd M. Sinai and Nicholas S. Souleles, *Can Owning a Home Hedge the Risk of Moving?* (October 2009), NBER Working Paper No. w15462, available at <http://ssrn.com/abstract=1498963> at 2-3 (finding that households “tend to move between highly covarying housing markets” which makes the purchase of the first home work as an effective hedge against the second home); Sinai & Souleles, *supra* note 8, at 763-64.

¹⁰⁹ For example, compare Lance Freeman & Frank Braconi, *Gentrification and Displacement, New York City in the 1990's*, 70 J. AM. PLANNING ASSOC. 39 (2004) with Kathe Newman & Elvin K. Wyly, *The Right to Stay Put, Revisited: Gentrification and Resistance to Displacement in New York City*, 43 URBAN STUD. 23 (2006).

¹¹⁰ See, e.g., Freeman & Braconi, *supra* note 109, at 39-40; Newman & Wyly, *supra* note 109, at 30-31.

¹¹¹ On the importance to tenants of the right to remain, see, e.g., Margaret Jane Radin, *Residential Rent Control*, 15 PHIL. & PUB. AFF. 350, 359-63, 368-70 (1986); Florence Wagman Roisman, *The Right to Remain: Common Law Protections for Security of Tenure: An Essay in Honor of John Otis Calmore*, 86 N.C. L. REV. 817, 820-29 (2008). The contrast between the situations of tenants and homeowners, respectively, is often less stark than the statement in the text might suggest. For example, tenants in many localities enjoy some protection against displacement, while some mortgage products, such as those with

landlords to offer and often unattractive to tenants who want to retain the option to leave if they so choose. Some scholars have suggested that tenants be afforded access to financial options indexed to area rents.¹¹² Under such a plan, if rents rose, so too would the value of the option held by the tenant, who could then afford the new, higher rent.¹¹³ Tenants would thus be effectively insured against increased rents.¹¹⁴ These options would amount to cell I REVEs, albeit ones that a third party governmental entity might fund or subsidize.¹¹⁵

It is also worth observing that rent control delivers a form of legally embedded rental price insurance that is tied to the household's specific unit. Recognizing this equivalence opens up the possibility that some tenants in rent-controlled units might wish to sell their implicit insurance, receiving a lump sum in exchange for greater exposure to changes in local rental rates (a cell II transaction).¹¹⁶

D. Livelihoods and Human Capital

1. Equity Shares in Future Earnings

Minor league baseball player Randy Newsom made the news in 2008 (and attracted unwanted regulatory attention from the SEC) by setting up a website to sell shares of his future major league earnings.¹¹⁷ A writer recently tried a similar tactic,¹¹⁸ and one might imagine the idea taking hold more broadly, were it not for regulatory hurdles.¹¹⁹ Even

adjustable rates, undermine the usual price protection associated with homeownership.

¹¹²See BRENDAN O'FLAHERTY, CITY ECONOMICS 369 (2005); Robert I. Lerman & Signe-Mary McKernan, *Promoting Neighborhood Improvement while Protecting Low-Income Families*, The Urban Institute, Opportunity and Ownership Project, No. 8 (May 2007), available at <http://www.urban.org/publications/311457.html>; Robert I. Lerman, *Promoting Neighborhood Improvement While Protected Low-Income Families*, prepared for presentation at the 29th Research Conference Association for Public Policy Analysis and Management, Nov. 8, 2009 (unpublished manuscript, on file with authors); see also Lee Anne Fennell & Julie Roin, *Controlling Residential Stakes*, U. CHI. L. REV. (forthcoming 2010), available at <http://ssrn.com/abstract=1452887> (proposing that local governments make such options available to tenants).

¹¹³See Lerman & McKernan, *supra* note 112; Lerman *supra* note 112.

¹¹⁴Although one incarnation of the proposal would envision the use of call options to deliver protection, the program could instead be explicitly structured as an insurance program. See Lerman & McKernan, *supra* note 112, at 2; Lerman *supra* note 112, at 7-8.

¹¹⁵For example, local governments might subsidize such financial instruments or provide them free of charge to low-income tenants. See, e.g., Lerman & McKernan, *supra* note 112.

¹¹⁶See Radin, *supra* note 111, at 359-60 n.12 (observing that "[t]here could also be tenants who would value the money they might get by 'selling' back to the landlord their rent-control rights more than they value a right to keep their apartments," but noting that actual rent control programs do not allow tenants to waive their rent control rights in exchange for a lower initial rent).

¹¹⁷See Alan Schwarz, *Buying Low: Minor Leaguer Takes Stock of Himself*, N.Y. TIMES, Feb 1, 2008. Newsom tabled his plan, see *id.*, and is now attending law school at Boston College. See <http://randynewsom.com/2009/08/26/tetanus-shots-law-school-anxieties-and-baseball-road-trips/>.

¹¹⁸See Posting to Freakonomics, <http://freakonomics.blogs.nytimes.com/2008/08/01/when-a-novelist-holds-an-ipo/> (Aug. 1, 2008, 13:02).

¹¹⁹See, e.g., Posting of Christine Hurt to Conglomerate, <http://www.theconglomerate.org/2008/08/one-more-time-s.html> (Aug. 5, 2008) (discussing regulatory issues). A number of non-U.S. companies,

people who have regular salaries might want to sell a proportion of the proceeds from a bonus, award, or promotion they stand some chance of receiving. For example, an academic who is widely viewed as standing a significant chance of winning the Nobel Prize might alienate the right to the proceeds from that prize in exchange for a sum certain.¹²⁰ These would represent cell IV transactions.

Although the idea of selling stock in oneself seems novel, it closely resembles familiar arrangements. Many firms heavily rely on equity financing, and one might well ask why individuals should not be able to do the same.¹²¹ Another parallel is found in recording or publishing contracts. There, a record company or a book publisher pays a lump sum to an artist or author in exchange for rights to most of the returns from specific creative works that may or may not have yet been produced. In these cases as well, there is great uncertainty surrounding the future payoff from an activity, and the artist effectively sells much of the upside potential in exchange for a sure gain now. That sure gain is paid partly in the form of an advance, which may help provide the up-front support necessary to create the work in question, and partly through the in-kind provision of production and publicity services. To the extent that new media distribution, publicity, and reputation-building channels opened up by the internet make the in-kind component easier for artists to supply or contract for on their own, we might expect to see more artists interested in selling equity shares on their own.¹²²

Liquidity needs are an important impetus for some of these REVEs, given that people are often unable to borrow against their own future earnings.¹²³ This raises the question

including UK-based Bandstocks and SlicethePie, and Amsterdam-based Sellaband, allow fans to invest in bands through their websites in exchange for specified benefits, including shares of the bands' future income. See Bandstocks, *How It Works: One Minute Version for Investors*, <http://www.bandstocks.com/Page.htm?action=HowItWorksInvestor>; SlicethePie, *Investor*, <http://www.slicethepie.com/About/Investor.aspx>; Sellaband, *How It Works*, http://www.sellaband.com/pages/how_it_works. Selling equity rights to an uncertain future income stream can be distinguished from using a known future income stream to secure a bond. A number of athletes, including White Sox player Frank Thomas, have attempted to securitize guaranteed future income streams as a way of raising money. See GIL FRIED ET AL., SPORT FINANCE 178 (2008). "Bowie Bonds" represented a similar effort at securitization, albeit one based on an income stream that proved fickle. See Karen Richardson, *Bankers Hope for a Reprise of "Bowie Bonds,"* WALL ST. J., Aug. 23, 2005.

¹²⁰ Nobel prospects have already figured in divorce settlements. See, e.g., Jason English, *Odd Facts About Nobel Prize Winners*, CNN.com, Oct. 6, 2009, <http://www.cnn.com/2009/LIVING/wayoflife/10/06/mf.nobel.odd.facts/index.html>. Betting markets in Nobel prospects have also developed. For example, both of this year's winners of the Nobel prize in economics (Elinor Ostrom and Oliver Williamson) were given 50/1 odds by one UK-based betting site, Ladbrokes. See Post to Greg Mankiw's Blog, <http://gregmankiw.blogspot.com/2009/10/nobel-odds.html> (Oct. 8, 2009) (citing Ladbrokes).

¹²¹ Cf. Andrew Caplin et al., *Shared-Equity Mortgages, Housing Affordability, and Homeownership*, 18 Hous. Pol'y Debate 209, 217 (2007) (observing that shared equity mortgages would permit homeowners to use equity to finance their homes, as well as debt).

¹²² See, e.g., Owen Gibson, *Don't Just Buy the Music, Fans Told—Now You Can Invest in Big Names of the Future*, THE GUARDIAN, Aug. 27, 2008 (reporting on Bandstocks, discussed at *supra* note 119).

¹²³ Human capital cannot be used as collateral for a loan, and default is a serious concern. For discussion and critique of limits on the alienability of human capital, see generally Stewart E. Sterk, *Restraints on Alienation of Human Capital*, 79 VA. L. REV. 383 (1993).

of whether risk rearrangement is the best response to the liquidity crunch, or whether changes in lending practices would be preferable.¹²⁴ In other cases, risk buffering appears to be the dominant motive. Professional athletes with frontloaded earning profiles, for example, may be much more interested in hedging career-ending injuries than in generating extra liquidity.¹²⁵ Another alternative, of course, would be for athletes to expressly insure against the injury itself, a garden-variety cell I transaction.

It would also be possible for people to “anti-insure” future income increases, whether to intensify their own incentives or to signal a high level of confidence.¹²⁶ For example, an individual worker could pay the expected value of a possible future bonus to a reverse insurer who agrees to match the bonus if the worker in fact receives it (a cell III transaction).¹²⁷

2. Livelihood and Income Insurance

Robert Shiller has proposed that people be able to hedge against changes in the profitability of a chosen profession, such as a particular scientific subspecialty.¹²⁸ His approach contemplates payouts based in part on indexes that capture trends within different fields rather solely on a given individual’s career trajectory.¹²⁹ Robert Hockett has similarly advocated a significant expansion in the risk management opportunities extended to workers and business owners, using a suite of hedging instruments based on economic and social indicators.¹³⁰ Another set of proposals involves tying student loan repayment obligations to future earnings in various ways.¹³¹ Other sorts of private

¹²⁴ For example, student loans represent one way in which people can effectively borrow against future earnings, and one that was historically facilitated by governmental involvement in guaranteeing loans. *See, e.g.,* Hockett, *supra* note 1, at 927-30. For discussion of loan products that blend risk rearrangement with liquidity, see text accompanying note 131, *infra*.

¹²⁵ Similarly, college athletes might be persuaded to delay entering the draft by insurance against the effect of injuries on their professional prospects, even though colleges are restricted from providing them with upfront cash payments. *See* Thomas W. Hazlett & Joshua D. Wright, *Hell No, Don’t Let Them Go!* CHI. TRIB., May 8, 2008.

¹²⁶ *See* Cooter & Porat, *supra* note 3, at 218-21 (describing “anti-insurance for gains”) For more on the signaling value of insurance choices, *see infra* note 227.

¹²⁷ *See* Cooter & Porat, *supra* note 3, at 218-21 (explaining how incentives could be amplified in this manner through side deals with anti-insurers).

¹²⁸ SHILLER, *supra* note 2, at 107-13; *see* Jedediah Purdy, *A Freedom-Promoting Approach to Property: A Renewed Tradition for New Debates*, 72 U. CHI. L. REV. 1237, 1272-78 (2005) (discussing Shiller’s proposal).

¹²⁹ *See* SHILLER, *supra* note 2, at 112-13.

¹³⁰ Robert Hockett, *Just Insurance Through Global Macro-Hedging: Information, Distributive Equity, Efficiency, and New Markets for Systemic-Income-Risk-Pricing and Systemic-Income-Risk-Trading in a “New Economy,”* 25 U. PA. J. INT’L ECON. L. 107, 214-26 (2004).

¹³¹ The College Cost Reduction and Access Act of 2007 provides limited risk-buffering by tying repayment schedules to earnings for most federally guaranteed loans and providing loan forgiveness after ten years of payments for those engaged in certain kinds of public service or public interest careers (others can receive loan forgiveness after twenty-five years). Pub. Law No. 110-84, titles II & IV. President Obama recently proposed an expansion of this approach that would cap student loan repayments at ten percent of the amount by which earnings exceed 150% of the federal poverty level and that would provide loan

unemployment or “salary-gap” insurance have also been attempted, albeit with limited success.¹³² Publicly provided unemployment insurance and means-tested social welfare benefits represent embedded mechanisms for buffering downside income and employment risk, and ones that are justified in part by difficulties sustaining private markets in these types of insurance.¹³³ These alternatives all fall within cell I’s domain of reducing downside risk, at least insofar as continued employment and past returns to a profession represent the operative baselines.

3. Reverse-Insuring Poverty and Unemployment

People might also wish to engage in REVEs that involve ceding future claims against the social safety net in exchange for expected value payments—a form of cell II reverse insurance against poverty or unemployment. For reasons that will be examined further below, such exchanges are generally viewed as problematic.¹³⁴ Nonetheless, a small-scale version of reverse insurance is quietly dispensed through many state welfare programs: families with acute, short-term needs can elect to receive a one-time lump sum payment in exchange for forgoing the right to seek regular monthly benefit payments under the Temporary Assistance for Needy Families (TANF) program for some period of time.¹³⁵ While such families are already suffering from a covered event under the social insurance scheme (poverty), the full extent and impact of the event is typically unknown at the time of the election. After receiving the cash payment, the family must bear whatever losses eventuate during the period in which they are precluded from seeking TANF benefits.¹³⁶

To take another example, consider the fact that some jobs come with a form of implicit insurance against termination except for limited reasons. The tenure protection

forgiveness after twenty years. See David K. Randall, *Obama Plans to Cut Student Loan Payments*, FORBES.COM, Jan. 25, 2010; see also Ron Lieber, *Aid for Students Facing Mountain of Debt*, N.Y. Times, Aug. 15, 2009 (reviewing past proposals and a new innovation called “SafeStart” that would provide an interest-free credit line to repay student loans if earnings are low in early years out of school); E.G. West, *The Yale Tuition Postponement Plan in the Mid-Seventies*, 5 HIGHER ED. 169 (1976) (analyzing Yale’s income-contingent loan program); SHILLER, *supra* note 2, at 139-48 (discussing “income-linked loans”).

¹³² See Ron Lieber, *Insure Yourself Against a Job Loss? Good Luck*, N.Y. Times, Aug. 8, 2009. Private insurance against one manifestation of unemployment is found in Hyundai’s recent “assurance” program permitting car buyers who finance or lease their vehicles to return them upon job loss (and other specified events) for up to a year without being responsible for up to \$7,500 in negative equity. See Hyundai Assurance, <http://www.hyundaiusa.com/financing/HyundaiAssurance/HyundaiAssurance.aspx>.

¹³³ See, e.g., Gillian Lester, *Unemployment Insurance and Wealth Redistribution*, 49 UCLA L. REV. 335, 362-65 (2001) (discussing difficulties in privately insuring against unemployment).

¹³⁴ See *infra* Part III.C.1.

¹³⁵ See, e.g., GRETCHEN ROWE & MARY MURPHY, WELFARE RULES DATABOOK: STATE TANF POLICIES AS OF JULY 2006 15 (2008), available at http://www.urban.org/UploadedPDF/411686_welfare_databook06.pdf.

¹³⁶ In some state programs, the diversion payments do not delay TANF eligibility or do so for a period of time that is equal to or less than that in which the diversion sum would have been expended through TANF’s monthly payments. However, other state programs delay TANF eligibility for up to two, three, or even four times as long as the period in which an equivalent amount of monthly TANF payments would have been made. See *id.* at 32-35, tbl. A.1.A.

extended to university professors is a classic example. We could imagine undoing this insurance through cell II transactions in which currently tenured professors accept a sum of money in exchange for being exposed to the same risk of termination as an at-will employee.¹³⁷

E. Health and Quality of Life

Health insurance is a familiar, if often controversial, cell I REVE. Yet a number of less conventional possibilities exist for addressing risk associated with health and other aspects of one's quality of life. Some of these alternatives could change the terms of the health insurance debate in fundamental ways. One set of ideas squarely confronts the fact that, as people move through time, they learn new information about their likely health risks. Because it is not possible to initiate life-long coverage before important information about health risks becomes known,¹³⁸ people might wish to insure against the higher insurance rates that such new information will produce by purchasing insurance against future high insurance premia.¹³⁹ These are standard cell I transactions, but they reach risks that presently either go unaddressed or are approached clumsily through limits on insurance risk classifications or exclusions.

Another set of ideas builds on the notion that money may produce less marginal utility in the ill state than in the well state.¹⁴⁰ For example, expensive travel may become unenjoyable if one is suffering from a debilitating disease. Thus, someone who loves to travel might wish to move money from the state of the world in which she is sick to the state of the world in which she is healthy. Richard Zeckhauser describes one manifestation of this idea—a kind of “commune” in which elderly people contribute to a fund that is earmarked for whoever among them remains healthy enough to enjoy using

¹³⁷See, e.g., Posting of Steven D. Levitt to Freakonomics, Let's Just Get Rid of Tenure (Including Mine), <http://freakonomics.blogs.nytimes.com/2007/03/03/lets-just-get-rid-of-tenure/> (March 3, 2007, 23:31) (stating that he would gladly give up tenure for a \$15,000 salary increase).

¹³⁸As Zeckhauser notes, “even infancy is too late” to spread health risks fully; “[b]y the time a child is born, his catastrophic health needs are determined to a substantial extent in the statistical sense.” Zeckhauser, *supra* note 24, at 159. It might be possible to move coverage earlier; Kyle Logue and Joel Slemrod have suggested that parents might purchase pre-conception “genetic endowment insurance.” Kyle Logue & Joel Slemrod, *Genes as Tags: The Tax Implications of Widely Available Genetic Information*, 61 NAT'L TAX J. 843, 859 (2008). But even this pre-conception insurance might come too late given the effect of the parents' genetic endowments on their children's expected genetic endowments.

¹³⁹See, e.g., David M. Cutler & Richard Zeckhauser, *Extending the Theory to Meet the Practice of Insurance*, in Brookings-Wharton Papers on Financial Services: 2004, at 21. For example, “gene insurance” procured before genetic testing occurs would enable individuals to affordably purchase health insurance that is accurately priced based on genetic information. See Alexander Tabarrok, *Gene Insurance*, in ENTREPRENEURIAL ECONOMICS: BRIGHT IDEAS FROM THE DISMAL SCIENCE 47 (Alexander Tabarrok, ed., 2002); see also John H. Cochrane, *Time-Consistent Health Insurance*, in ENTREPRENEURIAL ECONOMICS, *supra*, at 53; Reed Abelson, *United Health to Insure the Right to Insurance*, N.Y. TIMES, Dec. 2, 2008, at B1; Posting of Tyler Cowen to Marginal Revolution, <http://www.marginalrevolution.com/marginalrevolution/2008/12/insurance-marke.html> (Dec. 3, 2008, 10:02).

¹⁴⁰See, e.g., Viscusi & Evans, *supra* note 28.

the money.¹⁴¹ This transaction spans the rows in Figure 3, giving an individual participant a chance at more money while healthy (an event-enhancing move that might be characterized as falling either in cell I or cell III)¹⁴² that is funded by an event-detracting REVE that might be characterized as falling either in cell II or cell IV).¹⁴³

Many other variations are imaginable. For example, suppose a senior citizen has a fifty percent chance of developing a mobility-impairing condition that will cause him to prefer living in a very small one-level apartment; otherwise, he would prefer to live in a stylish multi-level house that he cannot currently afford. An investor might enter into an arrangement with him whereby she will cover half the cost of the multi-level home, conditional on the senior citizen turning the home over to her as sole owner in the event the condition develops.¹⁴⁴ Such approaches have the interesting feature of encouraging the production of accurate information about possible health states, since this information offers a source of financial leverage.¹⁴⁵

Relatedly, a REVE might address concerns about the proportion of health care dollars spent on end-of-life health care when quality of life may be low.¹⁴⁶ Suppose that a screening procedure indicates that a patient has a ten percent chance of developing condition X. If condition X develops, the patient could extend her life by roughly three months through treatment that costs \$500,000; however, she would be in significant discomfort during most of that time. If her health insurance covers this treatment, she is effectively holding a claim worth the present value equivalent of \$50,000 in medical treatment. Suppose the patient could trade in her claim to this expensive end-of-life treatment at the time of screening for a payment that she can use during the disease's latency period, or for a payment that she (or her estate, if X develops) will enjoy at the end of the latency period. Such an approach would constitute a form of partial reverse

¹⁴¹ See Zeckhauser, *supra* note 24, at 157.

¹⁴² On one view, the transaction insures one against running out of funds during a period of continued good health, when such funds are especially necessary and utility-producing. This interpretation would line up at least roughly with cell I. The idea is analogous to that behind an annuity, where the hazard in question is outliving one's wealth. See, e.g., Zeckhauser, *supra* note 24, at 157 (describing annuities as "anti-life insurance"). An alternative interpretation would be that one is buying a lottery ticket that may provide an upside payoff to augment the good luck of remaining healthy; this would line up with cell III.

¹⁴³ One might view the agreement to give up funds in the event of poor health as leaving one exposed to an unremediated ditch (cell II). However, if money is less utility-producing when one is in a state of poor health, it may represent a form of gravy that one would rather sell off one's rights to receive (cell IV).

¹⁴⁴ The "housing partnerships" idea developed by Andrew Caplin and his coauthors similarly contemplates investors going in with homeowners on their home purchases and sharing rights to equity, although for different reasons and pursuant to different sharing rules. See generally ANDREW CAPLIN ET AL., HOUSING PARTNERSHIPS: A NEW APPROACH TO A MARKET AT A CROSSROADS (1997). Another analogue is found in schemes in which an elderly individual signs over rights to a property upon her death (in effect, selling the home subject to a reserved life estate). See Flavia Kraus-Jackson & Flavia Rotondi, *In Italy, Home Sales With a Twist*, INTERNATIONAL HERALD TRIB., Feb. 26, 2009 (describing "nude sales" in which ownership passes but the seller has the right to life-long occupancy).

¹⁴⁵ Cf. Hockett, *supra* note 130, at 228-33.

¹⁴⁶ Whether "too much" is spent at the end of life is a difficult question. For a recent economic analysis of terminal care, see Tomas J. Philipson et al., *The Value of Life Near Its End and Terminal Care* (Oct. 30, 2009 draft), available at http://economics.uchicago.edu/pdf/philipson_110909.pdf.

insurance that might be framed either as a cell II REVE exposing the patient to a “ditch” (the untreated condition X) or as a cell IV REVE in which the patient cedes a form of (unpalatable) “gravy” (the treatment for condition X).

Health is not the only aspect of well-being that might be addressed through new REVEs. For example, family configurations carry enormous potential to alter one’s need for, and utility from, money. Although there are obvious impediments to insuring against events like divorce or child-bearing, some hedging might still occur in these areas, whether through social policy or private innovations.¹⁴⁷ On the more quotidian end of the spectrum, betting on sports events is a familiar way to add risk to one’s life; it is also possible that people might want to hedge utility losses by betting *against* their favorite teams (a cell I transaction).¹⁴⁸ A recently introduced cell I variation is insurance that participants in fantasy sports leagues can purchase against injuries sustained by the players they have selected.¹⁴⁹ Individuals and households might ultimately be able to hedge a broad range of risks to their well-being, from a shortage of sunny days¹⁵⁰ to population, income, or crime trends in their current or future communities.¹⁵¹

III. EFFICIENCY AND RISK CUSTOMIZATION

The discussion to this point has emphasized both the existing gaps and asymmetries in risk markets and the growing interest among both scholars and entrepreneurs in finding ways to fill them in. Law can take a variety of stances toward these developments, from maintaining or toughening prohibitions on REVEs, to replacing outright bans with liability rules,¹⁵² to loosening or lifting restrictions, to subsidizing or otherwise facilitating the development of new risk markets, to setting up government-provided opportunities to trade in unbundled risk.

Broadly speaking, there are three sets of costs that legal policy must take into account

¹⁴⁷ For example, social policies that direct resources towards those raising children have the effect of buffering some of the financial impacts of procreation. One company has announced plans to offer a “guaranty” on marriage. SafeGuard Guaranty Corporation, *Shifting a Social Paradigm*, <http://www.safeguardguaranty.com/Investors3.html>; see also Posting of Dave Hoffman to *Concurring Opinions*, http://www.concurringopinions.com/archives/2007/08/should_you_buy_1.html (Aug. 2, 2007) (discussing obstacles to divorce insurance and describing SafeGuard’s product as an “investment vehicle” rather than insurance); Posting of Robin Hanson to *Overcoming Bias*, <http://www.overcomingbias.com/2007/10/marriage-future.html> (Oct. 22, 2007, 6:00) (discussing the potential market for “marriage futures”).

¹⁴⁸ See Philip J. Cook & Daniel A. Graham, *The Demand for Insurance and Protection: The Case of Irreplaceable Commodities*, 91 Q.J. ECON. 143, 149 n.14. (1977).

¹⁴⁹ See Nando Di Fino, *A New Kind of Pocket Protection*, WALL ST. J., Sept. 1, 2009.

¹⁵⁰ Weather futures have already claimed an important niche market among those in weather-sensitive industries. See, e.g., *Come Rain or Come Shine*, ECONOMIST, Feb. 10, 2007, at 78, 78–79; CME Weather Products, <http://www.cme.com/trading/prd/weather/>. See also Croley & Hanson, *supra* note 3, at 1796–97 (presenting a hypothetical in which people might wish to reallocate sunshine across different states of the world).

¹⁵¹ See, e.g., Hockett, *supra* note 130, at 203–26.

¹⁵² See Calabresi & Melamed, *supra* note 18, at 1092.

in deciding how much risk customization to allow or encourage.¹⁵³ First are the costs associated with a default or mandatory risk allocation that is suboptimal for at least some interactions. Affected parties must bear either the cost of the suboptimal allocation, the cost of altering consumption or activity choices in an effort to adjust risk obliquely, or the cost of moving away from the default—whichever is less. Easing moves away from the default allocation would reduce these costs, but it could also facilitate inefficient risk shifts, whether due to mistakes, cognitive biases, or externalities. Thus, a second category of costs is made up of mistaken or socially harmful risk reallocations from a given starting point. A third set of costs stems not from any particular risk arrangement but rather from heterogeneity in risk arrangements within a particular domain.

A. Is the Status Quo Optimally Unbundled?

In considering these costs and their relationship to each other and to legal policy, a threshold question inevitably arises: has the status quo already gotten things precisely right, so that any missing entries in the risk menu “deserve” to be missing? Here it is useful to note that initial risk allocations may be difficult or impossible to reverse or undo for two basic reasons. First, there may be a legal prohibition on REVEs that makes the initial allocation a mandatory, rather than default, arrangement. Second, there may simply be no market offering a particular REVE. Can we infer from the fact that a market is blocked or absent that it would not be capable of producing any social gains? In answering this question, it is tempting to treat legal blockades as different in kind and inherently more suspect than the failure of markets to emerge in the absence of legal prohibitions. But the existence of externalities, both positive and negative, complicates the story, as does the possibility that people may not always be the best agents for their own interests or preferences.

Although it is ultimately an empirical question whether and to what extent missing or blocked markets impose net social costs on society, it is useful to work through some of the primary considerations that bear on whether REVEs will be—or should be—available. I will start with reasons why a presently absent risk endstate might be either unsustainable or unattainable, notwithstanding its legal availability. I will then examine considerations that might support a legal ban on particular REVEs. Finally, I will consider the potential costs of heterogeneity.

B. Unsustainable or Unattainable Risk Endstates

REVEs are used to move from an existing risk allocation to a new one. If the new

¹⁵³ Cf. Thomas W. Merrill & Henry E. Smith, *Optimal Standardization in the Law of Property: The Numerus Clausus Principle*, 110 YALE L.J. 1, 24-42 (2000) (examining optimal standardization in the property context by weighing “frustration costs” to the parties of limited forms against the costs that customization may impose on the system and on third parties).

allocation cannot be successfully sustained over time because its costs exceed its benefits, nothing is lost by not being able to move to it. However, the present unattainability of a risk endstate may not signal its social worthlessness if, for example, a first-moving entrepreneur could not capture enough of the benefits of offering the new arrangement.

1. Moral Hazard

Certain REVEs might not emerge because the underlying risk arrangements that they bring about cannot be profitably offered due to moral hazard concerns. Moral hazard refers to the tendency of those insured against a loss to do less to avoid that loss than they would if they had to fully bear it.¹⁵⁴ The problem emerges when a particular hazard or potentiality blends together factors under a party's control with those that are not under her control. Arrow has accordingly characterized the moral hazard problem as one of incomplete risk definition.¹⁵⁵ Although often kept within acceptable bounds through measures like deductibles, copayments, coverage limitations, and monitoring,¹⁵⁶ moral hazard can make private insurance markets difficult or impossible to sustain in some cases. Even if the controllable and uncontrollable aspects of a given event can be defined in the abstract, informational and administrative difficulties may make isolation of the "pure risk" component prohibitively costly or impracticable.¹⁵⁷ Thus, there may be instances in which REVEs are not feasible because the risk in question simply cannot be unbundled from components under individual control to the degree necessary to support a market transaction.¹⁵⁸

Although moral hazard is a powerful consideration that bears on the viability of markets in risk, it does not appear to be a likely explanation for the patterns of missing REVEs observed in the real world. Significantly, REVEs can resolve as well as introduce moral hazard problems. Most obviously, a REVE can place risk on the party best

¹⁵⁴ See, e.g., Kenneth J. Arrow & Robert C. Lind, *Uncertainty and the Evaluation of Public Investment Decisions*, in *ESSAYS IN THE THEORY OF RISK-BEARING*, *supra* note 1, at 239, 243 (explaining that "the fact that someone has insurance may alter his behavior so that the observed outcome is adverse to the insurer").

¹⁵⁵ See, e.g., Arrow, *Insurance*, *supra* note 1, at 142 (identifying the moral hazard problem as accompanying situations where "the risk-bearer cannot completely define his risks" and in which "he only observes a result which is a mixture of the unavoidable risk, against which he is willing to insure, and human decision"); Kenneth J. Arrow, *Uncertainty and the Welfare Economics of Medical Care*, in *Essays in the Theory of Risk-Bearing*, *supra* note 1, at 177, 202 (explaining that we would prefer that "the event against which insurance is taken be out of the control of the individual," but noting that "in real life this separation can never be made perfectly").

¹⁵⁶ See e.g., Arrow, *Insurance*, *supra* note 1, at 142-43.

¹⁵⁷ For example, a potential tort victim in a strict liability regime might wish to contract with her potential injurer to downgrade coverage to negligence only, yet this customization would be unworkable unless courts in such regimes were willing to make negligence determinations. I thank Saul Levmore for discussion on this point.

¹⁵⁸ Innovation could change the cost calculation, however. See, e.g., SHILLER, *supra* note 2 (discussing role of index-based financial instruments in risk innovation); Lior Jacob Strahilevitz, *How's My Driving? for Everyone (and Everything?)*, 81 N.Y.U. L. REV. 1699, 1726-29 (2006); see *id.* at 1752-54 (noting the potential role of new forms of monitoring and information sharing in the pricing of risk).

positioned to influence outcomes (or on more of the parties whose behavior is relevant to the outcome) where the law's default position fails to do so. Indeed, where insurance produces a risk of moral hazard, reverse insurance does the opposite, reviving incentives to take due care by exposing parties to the full effects of their risk-taking actions. Thus, the relative dearth of reverse insurance opportunities seems to require some explanation other than garden-variety moral hazard concerns.

David Friedman has observed that a form of "reverse moral hazard" could produce difficulties for reverse insurance markets despite the social efficiency of the added care.¹⁵⁹ Friedman explains that people who sell their claims will take additional precautions that, albeit socially desirable, lower the value of the claim to the buyer below the value demanded by the seller, "which may prevent the sale."¹⁶⁰ To see his point, consider a potential tort victim, Vera, who sells her unmatured claim. Because of the implicit insurance provided by the tort system, Vera begins with an entitlement package that effectively permits her to indulge in some degree of moral hazard. Once Vera sells her claim and will have to bear her own actual losses, however, she will take optimal, not suboptimal, precautions. Knowing this, a third party reverse insurer will price the claim based on optimal precaution levels, giving Vera nothing for her added precaution costs. Of course, the potential injurer in the story (who will have to compensate the reverse insurer in the case of a loss) benefits from Vera's changes in care levels, and thus should be willing to kick in an additional portion to subsidize the sale. But the added transaction costs associated with arranging this side payment may keep the deal from occurring.¹⁶¹

Interestingly, it is precisely where the gains from reverse insurance are the greatest (that is, where the moral hazard problem that would be relieved is the largest) that this phenomenon would drive the largest wedge between what the person selling a claim would be asked to give up and what the person buying the claim would be willing to pay. Because the potential social gains would be so great in that context, mechanisms for lowering transaction costs might prove worthwhile if they could be devised. Devising them could implicate another issue that has broader significance in risk markets—innovation costs expended on gains that might not be fully realized by the innovator.

2. Innovation Costs

Developing new risk management products requires significant up-front expenditures on research and marketing, but may fail to produce the hoped-for returns. There may be substantial uncertainty about whether demand exists for such a product and whether it will pass legal muster.¹⁶² In other words, designing a REVE is itself a risky enterprise.

¹⁵⁹ Friedman, *supra* note 29, at 93, n. 12 (describing the potential for "reverse moral hazard" to impede reverse insurance markets).

¹⁶⁰ *See id.*

¹⁶¹ *See id.* at 91.

¹⁶² *See, e.g.,* Michael Abramowicz & John F. Duffy, *Intellectual Property for Market Experimentation*, 83 N.Y.U. L. REV. 337 (2008).

Even if the risk pays off and a new REVE is successful, the ability of others to quickly copy the successful business model will diminish the returns to the innovation.¹⁶³ If this factor is important in explaining missing REVEs markets, innovation could be encouraged through subsidies offered ex ante¹⁶⁴ or through intellectual property protections provided ex post.¹⁶⁵

3. Switching, Searching, and Social Norms

Additional barriers to REVEs might include search costs,¹⁶⁶ switching costs,¹⁶⁷ and social norms. For example, people may feel pressure to configure risk similarly to others in their reference group. This could raise the cost of switching to an unconventional alternative. In addition, certain unfamiliar risk-shifting arrangements may generate visceral distaste.¹⁶⁸ Such factors are potentially malleable,¹⁶⁹ but they may nonetheless reduce the demand for certain REVEs or raise the reputational cost of offering them.¹⁷⁰

The same factors that can impede the spread of REVEs may support their adoption under certain circumstances. For example, scholarship examining decisions to obtain or do without flood insurance and earthquake insurance suggests a quite significant role for word-of-mouth communications about insurance purchases.¹⁷¹ These contacts may not only lower search costs, but may also help establish and communicate social norms about

¹⁶³ In this respect, risk innovation resembles a public good that we might expect the private market to underprovide, given the positive externalities it generates. See ROBERT J. SHILLER, *MACRO MARKETS: CREATING INSTITUTIONS FOR MANAGING SOCIETY'S LARGEST ECONOMIC RISKS* 207-08 (1993).

¹⁶⁴ See, e.g., *id.* at 208.

¹⁶⁵ See, e.g., Abramowicz & Duffy, *supra* note 162, at 366-71.

¹⁶⁶ The more difficult it is to learn about an alternative to the status quo, or the less "available" to the would-be consumer are the concerns to which that alternative responds, the less likely she will be to engage in a REVE. See, e.g., Howard Kunreuther, *Limited Knowledge and Insurance Protection*, 24 PUB. POL'Y 227 (1976) (observing that people in flood- and earthquake-prone areas often lack awareness of the relevant risks and of the availability and cost of insurance); Johnson et al., *supra* note 14, at 39-42 (discussing the role of mental "availability" of risks in a variety of insurance contexts).

¹⁶⁷ Switching from one risk arrangement to another may induce regret if it turns out badly; knowing this, people may avoid change. See, e.g., Robert E. Scott, *Error and Rationality in Individual Decisionmaking: An Essay on the Relationship Between Cognitive Illusions and the Management of Choices*, 59 S. CAL. L. REV. 329, 340 (1986). For an examination of the potential effect of anticipated regret on new markets in housing risk, see Robert J. Shiller, *Derivatives Markets for Home Prices* (NBER Working Paper No. 13,962, April 2008), available at <http://www.nber.org/papers/w13962.pdf>, at 17-20.

¹⁶⁸ Bets that involve life and death seem to produce especially strong reactions, and markets in everything from life insurance to predictions of terrorism risks have been affected. See, e.g., Roth, *supra* note 79, at 41-42; Michael Pereira, *Risk Management for the Age of Information*, 9 FORDHAM J. CORP. & FIN. L. 715, 732-33 (2004) (reviewing SHILLER, *supra* note 2).

¹⁶⁹ See Roth, *supra* note 79, at 38 (observing that transactions may be considered "repugnant in some times and places and not in others."); see *id.* at 39, tbl. 1. The distaste associated with some kinds of REVEs may ultimately prove transient. See, e.g., *id.* at 41 (observing that life insurance "seems to have had to overcome initial repugnance in the early 1800s").

¹⁷⁰ See, e.g., Cass R. Sunstein, *On the Expressive Function of Law*, 144 U. PA. L. REV. 2021, 2040 (1996) (suggesting that people's reluctance to insure against certain losses could be a function of social norms).

¹⁷¹ See, e.g., Kunreuther & Pauly, *supra* note 14, at 76-77.

insurance.¹⁷² Given the potential effects of learning and interdependence in choices, it is difficult to infer from the absence of a REVE market that one would ultimately prove unsuccessful.

4. Framing

Finally, framing effects may cause individual actors or even society as a whole to reject alternatives simply because they involve moves in an unaccustomed direction. For example, allowing people to shed insurance coverage that is embedded in the existing tort regime (such as that covering pain and suffering) may seem highly suspect until we imagine a world in which that coverage is not provided and ask whether we would want to force everyone to buy it anew.¹⁷³ Similarly, risks that are currently part of standard legal bundles, such as the housing market volatility that accompanies homeownership, may be unthinkingly accepted. Shedding that risk seems odd—at least until one asks whether, given the choice, one would buy shares anew that deliver payouts based on factors like the actions of one's local government, changes in the regional labor market, and the movement of national economic indicators.¹⁷⁴

Seeing REVEs in action can encourage people to ask such “repurchase” questions. If unbundled risk transactions become more commonplace and the frame-flipping that they encourage becomes more reflexive, we might see advances in how people think about risk-bearing. Risk allocations that now appear as simply part of the background condition against which decisions are made will become visible as conscious choices that could be otherwise. This argument suggests that widespread private risk trading could have some characteristics of a public good, to the extent it helps to build a culture in which the risk-bearing characteristics of situations are noticed and actively considered. Put differently, it raises the intriguing possibility that lack of interest in some REVEs is largely a product of existing arrangements—a failure of imagination rather than well-informed disinterest.¹⁷⁵

¹⁷² See, e.g., *id.* at 77 (citing Cass R. Sunstein, *Social Norms and Social Roles*, 96 COLUM. L. REV. 903 (1996); *id.* at 96. Part of these peer effects may relate to predictions about how forthcoming outside assistance will be in the event of a loss; the more unusual it is to be uninsured, the less likely one might judge such assistance. *Id.* at 96.

¹⁷³ While there may be some people who would value such coverage, there is reason to believe that many others would not. See, e.g., Ronen Avraham, *Should Pain-and-Suffering Damages Be Abolished from Tort Law? More Experimental Evidence*, 55 TORONTO L. REV. 941 (2005) (reviewing past literature and presenting new empirical findings on whether people would actually choose to insure against such pain and suffering in a world without tort law); Cooter, *supra* note 4, at 388-94; Schwartz, *supra* note 28, at 364-67.

¹⁷⁴ See, e.g., William A. Fischel, *Why Are There NIMBYs?*, 77 LAND ECON. 144, 146 (2001) (analogizing the purchase of a home to the purchase of undiversified stock in the local housing market).

¹⁷⁵ See, e.g., Hockett, *supra* note 1, at 946-47 (suggesting factors such of lack of imagination and inertia may explain missing markets in risk); Hockett *supra* note 130, at 218 (observing in the context of risk markets that “[t]he imaginative space in which demands are formed is itself in part a function of what is already supplied”); Robert J. Shiller, *Radical Financial Innovation*, in *ENTREPRENEURSHIP, INNOVATION, AND THE GROWTH MECHANISM OF THE FREE-ENTERPRISE ECONOMIES* 306, 320 (Eytan Sheshinski, Robert J. Strom & William Baumol eds., 2007) (noting psychological barriers to the adoption of new risk management mechanisms and suggesting that innovative framing could overcome them). This explanation

C. Socially Costly REVEs

In some cases REVEs are unavailable due to legal prohibitions. To the extent that these prohibitions are binding (that is, they block transactions that would otherwise occur) we might expect the justification to lie in unaccounted-for costs placed on parties other than those directly engaged in the transaction or, perhaps, on temporal selves that are not well-represented in the transaction. Examining externalities and internalities in the context of risk transactions will enable us to consider how well these concerns map onto existing legal prohibitions.

1. Externalities

In some cases, a party who purports to accept a given risk can actually offload part or all of any resulting loss on others.¹⁷⁶ Consider, for example, insurance requirements designed to counter the problem of judgment-proof defendants.¹⁷⁷ A tortfeasor's choice to do without insurance, where she is otherwise unable to pay for the damage she does, shifts the loss to another party. Similarly, because the need to resort to social insurance can often be reduced by purchasing or retaining other forms of insurance, the decision to go without insurance (or to give up one's coverage for an expected value payment) can impose externalities on others.¹⁷⁸ The government, as insurer of last resort, has an interest in precluding risk taking that would be expected to increase its losses. Just as private insurers might mandate deadbolts or fire extinguishers to avoid losses, the government might specify the purchase and use of certain insurance products.

Moreover, given society's normative commitment to provide some baseline of support, people are not permitted to "cash out" the expected value of their future social insurance payments.¹⁷⁹ Thus, people are legally precluded from taking on downside risk that would cut into their very basic subsistence needs. If society wishes to provide insurance against such risks in kind, the claim to those benefits must be made inalienable.

relates in obvious ways to the costs and risks of innovation, discussed *infra* in Part III.B.2.

¹⁷⁶ See, e.g., CALABRESI, *supra* note 3, at 58-59 (explaining that because "often the individual does not have to bear all the costs that result if he chooses to leave losses uninsured" it may be socially desirable to compel certain forms of insurance).

¹⁷⁷ See, e.g., CALABRESI, *supra* note 3, at 58-59; Steven Shavell, *The Judgment Proof Problem*, 6 Intl. Rev. L. Econ. 45, 54 (1986); Mattias K. Polborn, *Mandatory Insurance and the Judgment-Proof Problem*, 18 Intl. Rev. L. Econ. 141, 143-44 (1998); see also Steven Shavell, *Minimum Asset Requirements and Compulsory Liability Insurance as Solutions to the Judgment-Proof Problem*, NBER Working Paper No. 10341, <http://www.nber.org/papers/w10341> (2004).

¹⁷⁸ To the extent that social insurance increases the tendency to do without private insurance, the problem is one of moral hazard. See *supra* Part III.A.B.1.

¹⁷⁹ See, e.g., Social Security Act, 42 U.S.C. § 407(a) ("The right of any person to any future payment under this title shall not be transferable or assignable, at law or in equity, and none of the moneys paid or payable or rights existing under this title shall be subject to execution, levy, attachment, garnishment, or other legal process, or to the operation of any bankruptcy or insolvency law."). See also David Andolfatto, *A Theory of Inalienable Property Rights*, 110 J. POLIT. ECON. 382, 383-84 (2002); *supra* Part II.D.3 (discussing the general prohibition on alienating claims to social insurance and some limited exceptions).

The provision of some baseline level of social insurance does not, however, explain why claims to payoffs that exceed that level should not be alienable.

Other laws preclude debtors from accepting the full risk of default. For example, personal bankruptcy laws require creditors to retain some of the risk associated with a debtor's enterprises.¹⁸⁰ Similarly, laws forbidding recourse against a homeowner's other assets in the event of foreclosure can cause losses associated with downward home price movements to fall on parties other than homebuyers.¹⁸¹ These laws precluding complete risk-bearing are presumably designed to avoid the societal spillovers that would result from leaving debtors fully exposed to loss.¹⁸² One such externality might be the debtor's eligibility for various forms of social insurance—protection necessary, in turn, to avoid the externalities associated with unalleviated poverty.¹⁸³ Of course, the bankruptcy laws themselves impose spillovers on other parties—not the creditors, who can price in the risk that the law forces them to bear, but the nondefaulting debtors who must pay more for credit (or suffer from reduced credit availability) as a result. The rules surrounding bankruptcy discharge and similar protections must strike a balance between these types of spillovers.¹⁸⁴

Negative spillovers (externalized losses) are often cited as a reason for blocking REVEs, but *positive* spillovers (externalized gains) may also be relevant. The discharge of debt in bankruptcy again offers an interesting example. Empirical work supports the theoretical claim that the U.S. personal bankruptcy system encourages higher levels of entrepreneurship than would exist in the absence of such a system.¹⁸⁵ Making REVEs that

¹⁸⁰ See Arrow, *Insurance*, *supra* note 1, at 139-40 (noting that under an arrangement like bankruptcy protection and limited liability "[t]he law in effect requires creditors to assume some of the risks of the debtor; it does not leave him free to negotiate a risk-free investment, and it provides for an inalienable limitation of risks to the debtor"); see also MOSS *supra* note 1, at 123-51 (examining bankruptcy's role as a risk-shifting mechanism).

¹⁸¹ See, e.g., Todd J. Zywicki & Joseph D. Adamson, *The Law & Economics of Subprime Lending*, 80 U. COLO. L. REV. 1, 30-32 (2009) (discussing state antideficiency laws and their effect on default choices).

¹⁸² Thomas H. Jackson, *The Fresh-Start Policy in Bankruptcy Law*, 98 HARV. L. REV. 1393, 1418-24 (1985) (detailing a variety of externalities that would flow from debt in the absence of debtor discharge). Internalities may also play a role. See *infra* Part III.C.2; Jackson, *supra* at 1394 (hypothesizing "that most people would choose to retain a nonwaivable right of discharge if they knew of the psychological factors that tempt them to overconsume credit").

¹⁸³ See Jackson, *supra* note 182, at 1401-04. As Jackson notes, this argument would only justify inalienable protection up to the level of support that social insurance would provide, not the far more extensive inalienable protections available under bankruptcy law. *Id.* at 1403. For a broader discussion of the relationship between bankruptcy and other forms of social insurance, see e.g., Adam Feibelman, *Defining the Social Insurance Function of Consumer Bankruptcy*, 13 AM. BANKR. INST. L. REV. 129 (2005); Richard M. Hynes, *Non-Procrustean Bankruptcy*, 2004 U. ILL. L. REV. 301, 350-60.

¹⁸⁴ See, e.g., Michelle J. White, *Abuse or Protection? Consumer Bankruptcy Reform under 'BAPCPA'*, 18-19 ÉCONOMIE PUBLIQUE 3, 5 (2006) (explaining that bankruptcy law "balances conflicting objectives of helping debtors in financial distress versus promoting credit availability by protecting creditors"); *id.* at 17 (noting the impact of greater protections for debtors on credit price and availability).

¹⁸⁵ See Wei Fan & Michelle J. White, *Personal Bankruptcy and the Level of Entrepreneurial Activity*, 46 J. LAW & ECON. 543 (2003) (developing a theoretical model for, and empirically testing, the relationship between the size of the bankruptcy exemption and entrepreneurship levels); see also F.H. Buckley, *The Debtor as Victim* (book review of TERESA SULLIVAN, ET.AL., *THE FRAGILE MIDDLE CLASS: AMERICANS IN*

would undo this protection unavailable does not force people to become entrepreneurs, but it helps keep down the cost of doing so.¹⁸⁶

2. Internalities

While externalities are unaccounted-for spillovers on other parties, “internalities” involve unaccounted-for spillovers on other temporal selves.¹⁸⁷ If some kinds of REVEs seem especially likely to compromise parties’ own long-run interests, the law might step in with bans or other mechanisms designed to control these effects.¹⁸⁸ For example, some REVEs would involve forgoing future payoffs in exchange for immediate lump sums. This might raise a concern if we think that people tend to be both myopic and prone to overvalue lump sums (whenever received) relative to streams of payments.¹⁸⁹ Similarly, if people tend to be unduly optimistic in predicting the outcomes of risky endeavors, then they might be overly inclined to engage in REVEs that actually leave them worse off in expected value terms. Some of these cognitive effects could be addressed without banning particular REVEs, however, as discussed below.¹⁹⁰

D. Costly Heterogeneity

A primary attraction of REVEs is their ability to accommodate heterogeneity in risk preferences and risk-bearing capacities. But heterogeneity in risk-bearing arrangements can also introduce costs, as the following sections explain.

1. Adverse Selection

Adverse selection is a concern when individuals have private information about their risk profiles that insurers (or reverse insurers) either cannot observe or are prohibited by law from taking into account in pricing risk.¹⁹¹ The difficulty arises because individuals

DEBT (2000)), 87 CORNELL L. REV. 1078, 1089 (2002) (suggesting that “bankruptcy might be a particularly useful incentive device in attracting employees to work in high-risk jobs, such as start-up ventures”).

¹⁸⁶ The reason relates to adverse selection. *See, e.g.*, Feibelman, *supra* note 183, at 142-43 (observing that the mandatory nature of bankruptcy protection prevents opting out patterns that would leave only bad risks in the pool); *see also* Hynes, *supra* note 183, at 344-50.

¹⁸⁷ *See, e.g.*, R.J. Herrnstein *et al.*, *Utility Maximization and Melioration: Internalities in Individual Choice*, 6 J. BEHAV. DECISION MAKING 149, 150 (1993) (defining “internality” as a “within-person externality”).

¹⁸⁸ *See, e.g.*, CALABRESI, *supra* note 3, at 55-58.

¹⁸⁹ There is a vast literature on time preferences. For a helpful overview, *see* Shane Frederick *et al.*, *Time Discounting and Time Preference: A Critical Review* in TIME AND DECISION 13 (George Loewenstein *et al.*, eds., 2003). There is also some evidence that people prefer lump sums over present-value-equivalent (or larger) streams of payments. *See, e.g.*, David Fetherstonhaugh & Lee Ross, *Framing Effects and Income Flow Preferences in Decisions About Social Security*, BEHAVIORAL DIMENSIONS OF RETIREMENT ECONOMICS 187 (Henry J. Aaron, ed., 1999).

¹⁹⁰ *See infra* Part IV.B.1.

¹⁹¹ *See, e.g.*, Kenneth J. Arrow, *Information and Economic Behavior*, *Lecture Presented to the Federation of Swedish Industries* (1973), in 4 COLLECTED PAPERS OF KENNETH J. ARROW: THE ECONOMICS

who possess this information are left free to choose whether or not to enter into a particular risk-shifting transaction, and can be expected to make this selection in a manner adverse to the insurer's interests.¹⁹² Hence adverse selection is a problem associated with heterogeneity in risk arrangements rather than with any particular risk configuration.

For example, if people know their genetic risk profile, but an insurer either cannot learn it or is forbidden to base pricing on it,¹⁹³ insurance will be priced based on the average expected losses of all sectors of the population. Since this price is likely to be a bad deal for the best risks, we might expect to see them flee the pool, assuming they are permitted to do so, spurring price increases in reaction to the now-riskier pool, further exits, and so on.¹⁹⁴ Insurers may try to arrest this dynamic by creating a menu of insurance alternatives designed to induce good and bad risks to self-segregate.¹⁹⁵ However, this approach tends to keep low-risk individuals from being able to purchase as much insurance as they would prefer.¹⁹⁶

The theoretical concerns about adverse selection would apply to reverse insurance situations as well.¹⁹⁷ A health insurance opt-out model would present mirror image concerns to those associated with an opt-in model,¹⁹⁸ while other reverse insurance settings, such as the sale of tort claims, would present new problems. For example, if Rita

OF INFORMATION 136, 143, 147-48 (1984); Michael Rothschild & Joseph Stiglitz, *Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information*, 90 Q. J. ECON. 629 (1976). The dynamics produced by such information asymmetries can also unravel markets other than those in risk. See George A. Akerlof, *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*, 84 Q.J. ECON. 488 (1970).

¹⁹² See, e.g., Tom Baker, *Containing the Promise of Insurance: Adverse Selection and Risk Classification*, 9 CONN. INS. L.J. 371, 375-76 (2002/2003) (noting origins of the term "adverse selection" in the insurance industry).

¹⁹³ See The Genetic Information Nondiscrimination Act of 2008, 110 P.L. 233; 122 Stat. 881 (prohibiting genetic discrimination in group health insurance plans and employment).

¹⁹⁴ See, e.g., Kunreuther & Pauly, *supra* note 14, at 100; Kenneth S. Abraham, *Environmental Liability and the Limits of Insurance*, 88 COLUM L. REV. 942, 946 (1988).

¹⁹⁵ See Rothschild & Stiglitz, *supra* note 191, at 632-37; Peter Siegelman, *Adverse Selection in Insurance Markets: An Exaggerated Threat*, 113 YALE L.J. 1223, 1237-38 (2004); see also David M. Cutler & Richard J. Zeckhauser, *Adverse Selection in Health Insurance*, NBER Working Paper No. 6107, at 22-27 (1997) (discussing a variety of strategies that might be used to combat adverse selection).

¹⁹⁶ Making a package designed for good risks sufficiently unattractive to bad risks is usually thought to require reducing the quantity of insurance below what good risks would prefer. See Siegelman, *supra* note 195, at 1239-40; Rothschild & Stiglitz, *supra* note 191, at 636. But see Siegelman, *supra* note 195, at 1253 (noting the potential for screening applicants through the kinds of benefits provided, such as a health club membership that would only be attractive to relatively fit individuals).

¹⁹⁷ See, e.g., Schwartz, *supra* note 89, at 428-29 (describing how adverse selection creates difficulties for markets in unmaturing tort claims); Michael J. Fluhr, *Unraveled: The Failure of Products Liability Markets*, Harvard Law School Student Scholarship Series, No. 9 (2006), <http://lsr.nellco.org/harvard/students/papers/9> (examining an "unraveling" dynamic in the context of products liability waivers).

¹⁹⁸ The insurer would want to compensate low risks less for dropping out of the pool than it would compensate high risks. But if it is unable to tell risks apart and offers everyone the low-risk price, only low-risk people will find it a good deal, and high-risk people will stay in the pool. See Schwartz, *supra* note 89, at 428-29.

does things that look like they are risky, but has special skills that actually render the activities quite safe, then the payments she would receive in exchange for selling her unmatured tort claims would be too high (assuming those payments were initially based on the risks of an average actor with Rita's observable characteristics). As more skilled actors like Rita enter the reverse insurance pool to obtain this bargain, however, reverse insurers would reduce their payments to better reflect the exposure being transferred to actors like Rita. As payouts drop, the reverse insurance product will become less attractive to less skillful actors, prompting exits that make the deal less attractive to reverse insurers, and so on.¹⁹⁹ Adverse selection may thus explain not only the failure of some insurance markets to emerge, but also the absence of certain kinds of reverse insurance.

Despite the seemingly inexorable logic of adverse selection, serious questions have been raised about its descriptive accuracy.²⁰⁰ For one thing, insureds do not always possess better information than insurers about their risk profiles.²⁰¹ The adverse selection story also assumes that people become more keen to purchase insurance as their personal chances of experiencing a negative event rises. But this may not be the case, at least not in all risk contexts. A growing body of scholarship examines the possibility that a converse phenomenon of “propitious” or “advantageous” selection better describes real insurance markets.²⁰² The effects observed in ordinary opt-in insurance markets might, however, operate asymmetrically in an opt-out regime, depending on the mix of factors driving insurance choices.²⁰³

2. Lumpiness

An additional argument against heterogeneity in risk arrangements has recently been articulated by Jennifer Arlen in the context of malpractice liability.²⁰⁴ Rather than have a single society-wide arrangement for malpractice liability, it would be possible for individual patients to contract with health care providers over liability arrangements. For

¹⁹⁹ Another potential domain in which adverse selection might operate in this context involves individual differences in “capacity to suffer.” See Schwartz, *supra* note 89, at 428-29 (describing the operation of an adverse selection dynamic analogous to the one presented in the text).

²⁰⁰ See e.g., Siegelman, *supra* note 195, at 1224 (“[A]lthough theory demonstrates that adverse selection can occur, and some instances have certainly been documented, neither the theoretical models nor the empirical studies provide much support for its widespread importance in insurance markets.”); *id.* at 1248-51 & 1278-80 & tbl. 2 (reviewing empirical work on adverse selection).

²⁰¹ See Siegelman, *supra* note 195, at 1241-45; see also *id.* at 1251-52 (observing that information asymmetries may run in favor of insurers). An adverse selection dynamic can also be produced if the law requires insurers to ignore information that insureds are free to act upon.

²⁰² See, e.g., David Hemenway, *Propitious Selection*, 105 Q. J. ECON. 1063 (1990); David de Meza & David C. Webb, *Advantageous Selection in Insurance Markets*, 32 RAND J. ECON. 249 (2001); Hanming Fang et al., *Sources of Advantageous Selection: Evidence from the Medigap Insurance Market*, 116 J. POLIT. ECON. 303 (2008); Siegelman, *supra* note 195, at 1264-74.

²⁰³ See *infra* Part IV.C.

²⁰⁴ Jennifer Arlen, *Contracting Out of Malpractice Liability: Medical Malpractice and the Cost of Choice*, U. PA. L. REV. (forthcoming), draft available at <http://ssrn.com/abstract=1448846>.

example, a patient might execute a waiver that would undo legal arrangements that place liability on the doctor.²⁰⁵ Arlen argues, however, that inputs into medical care tend to be “lumpy” or discontinuous, so that it is not possible for health care providers to perfectly scale back their precaution levels in light of patients’ waivers.²⁰⁶ If it is also impossible to selectively withhold the benefits of precaution from those patients who execute waivers, Arlen argues, precaution levels may exhibit the character of a public good.²⁰⁷ The result may be a system in which some patients try to free-ride on liability-induced precautions without contributing to them.²⁰⁸ If every patient tries this, precaution levels may eventually drop below the efficient level for most patients.²⁰⁹

Of course, the patient opting out of a malpractice liability regime would receive a different monetary outcome in the event of an injury than would the patient who did not execute a waiver. What the lumpiness analysis emphasizes is that the risk over which parties transact is not fixed *ex ante* but instead depends at least in part on the risk-bearing choices that other parties make.²¹⁰ Lumpiness thus represents another facet of interdependence in risk bearing which, like adverse selection, suggests costs may flow from permitting heterogeneity in risk arrangements.

3. Lack of Standardization

Another cluster of concerns about permitting heterogeneity in risk arrangements relates to concerns about lack of standardization. Standardization’s potential benefits and costs have been explored in the context of property’s *numerus clausus* doctrine,²¹¹ as well as in the literature on boilerplate contractual provisions.²¹² In these arenas, it has been suggested that fixed menus or standardized terms can lower the cost of interactions by

²⁰⁵ See, e.g., THALER & SUNSTEIN, *supra* note 49, at 207.

²⁰⁶ See Arlen, *supra* note 204, manuscript at 24-25, 27-38.

²⁰⁷ *Id.* at 25, 27-28.

²⁰⁸ *Id.*

²⁰⁹ *Id.* at 25, 29. Arlen suggests it may be possible to address this problem by contracting through Managed Care Organizations, although not without creating other difficulties. See *id.* at 36-48.

²¹⁰ Analogous points about the interdependence of choices to opt in or out have been made in other contexts. See, e.g., ALBERT O. HIRSCHMAN, EXIT, VOICE, AND LOYALTY (analyzing the effects on institutions of the exit of those who, if they stayed, would have been the most vocal in seeking change); Jeffrey N. Gordon, *The Puzzling Persistence of the Constrained Prudent Man Rule*, 62 N.Y.U.L. REV. 52, 80-81 (1987) (suggesting that the ability of parties to contract around a trust investment rule may dissipate the will to litigate or to lobby for legislation that would improve the rule for everyone).

²¹¹ See, e.g., Henry Hansmann & Reinier Kraakman, *Property, Contract, and Verification: The Numerus Clausus Problem and the Divisibility of Rights*, 31 J. LEGAL STUD. 373 (2002); Merrill & Smith, *supra* note 153; Bernard Rudden, *Economic Theory v. Property Law: The Numerus Clausus Problem*, in OXFORD ESSAYS IN JURISPRUDENCE, 3D SERIES 237 (John Eekelaar & John Bell eds., 1987); Nestor Davidson, *Standardization and Pluralism in Property Law*, 61 VAND. L. REV. 1597 (2008).

²¹² See, e.g., Henry E. Smith, *Modularity in Contracts: Boilerplate and Information Flow*, 104 MICH. L. REV. 1175 (2006); Marcel Kahan & Michael Klausner, *Standardization and Innovation in Corporate Contracting (or “The Economics of Boilerplate”)*, 83 VA. L. REV. 713 (1997); Joshua Fairfield, *The Cost of Consent: Optimal Standardization in Contract*, 58 EMORY L.J. 1401 (2009).

reducing the amount of new information that must be gathered in each instance.²¹³ Similar arguments may apply in the risk context. For example, homebuyers entering a neighborhood filled with “homeowners” may find it easier to form settled expectations about the likely behavior (political and otherwise) of their future neighbors if homeownership inevitably connotes full ownership of upside and downside home investment risk than if some unknown proportion of their fellow homeowners have offloaded some or all of this risk. Similarly, to the extent that other laws or social policies (including the provision of social insurance) are predicated on how certain risks are arranged, homogeneity in risk bearing can simplify the design of these surrounding elements.

IV. RETHINKING RISK REVISION

The discussion to this point has placed a large number of REVE-related categories, examples, advantages, objections, and impediments on the table. In this last Part, I distill some policy observations from the preceding analysis. Subpart A returns to the taxonomy presented in Figure 3 to suggest that personal risk rearrangement opportunities follow patterns that appear to be shaped more by history and societal framing than by logic or meaningful normative distinctions. Some of the concerns that have been raised about REVEs transactions can be addressed through minor redesigns, such as the removal of inessential payment timing elements, as Subpart B explains. Subparts C and D, respectively, show how manipulating the two policy levers that a focus on unbundled risk spotlights—the choice of the default and the stickiness of the default—expands policy space. The newly visible alternatives may offer new ways to counter biases, more smoothly accommodate multiple policy objectives, or harness other asymmetries associated with opting out rather than in.

A. Rows, Columns, Frames, and Bundles

One of the most striking facts highlighted by the taxonomy set out in Figure 3 is the relative dearth of explicit bottom-row or “event-detracting” REVEs available to individuals and households. Focusing just on the risk endstates produced by these REVEs, there appears to be no plausible normative reason why event-detracting REVEs should be treated differently than event-enhancing REVEs. To be sure, some event-detracting REVEs would leave individuals exposed to potential losses or “ditches.” But an indistinguishable state of exposure results when an individual simply fails to engage in an analogous event-enhancing REVE. Concern about downside exposure certainly may

²¹³ See, e.g., Merrill & Smith, *supra* note 211, at 8 (observing that unusual property forms inflict an externality on those who must expend time learning about the entitlement’s attributes, while standardized property forms economize on such costs); Kahan & Klausner, *supra* note 212, at 719-27 (detailing “learning benefits” and “network benefits” of boilerplate contract terms).

prompt mandatory insurance requirements, especially where unremediated losses will produce externalities or trigger additional layers of societal assistance. But that argues for distinguishing between the *columns* in Figure 3, not between the rows.

That there is nothing normatively superior about top-row REVEs becomes even clearer when cell III from the top row is compared with cell IV in the bottom row. Both of these entries involve upside risk, yet there no obvious reason to make it easier to gamble for upside gains than it is to exchange potential “gravy” for a sum certain. If gambles are voluntary in the top-row situation, then why should people be prohibited from using a bottom-row REVE to attain the same risk position?

The point I am making is one about consistency, not about the overall level of risk rearrangement opportunities. Thus, if people are not forced to purchase insurance that will protect them against losses from one set of events (such as the death of a minor child to an illness, or injuries that occur within the home due to one’s own carelessness), it is difficult to understand why they should be prohibited from shedding societal insurance against the same losses when they are caused by tortfeasors. The point can be flipped around: if people are forced to insure at a very high level against losses caused by tortfeasors, permitting them to be exposed to unremediated losses that result from other causes requires some explanation.²¹⁴

Similar analysis might be applied to insurance gaps that are a function of unexamined bundling, such as the default packaging of exogenous housing market risk with homeownership. If people are encouraged or even forced by their mortgage companies to insure against one set of home value losses, such as those from fire, the practical unavailability of insurance against a different set of losses to home values, such as those associated with local market downturns, should at least invite inquiry. This is not to suggest that perfect consistency in insurance opportunities across domains is required or even recommended, only that we should be certain that differences map onto real differences in the costs or consequences of offering REVEs, rather than merely emerging as artifacts of the way that insurance choices are presently bundled and framed.

As already suggested, one coherent normative distinction might focus on preventing exposure to unremediated losses, thus treating left-row REVEs differently than right-row REVEs. Here too, consistency is important. If the goal is a certain subsistence level of coverage, then transactions that “reverse insure” amounts over that level should not be deemed any more problematic than the failure to buy insurance in excess of the minimum level. In some cases, REVEs could be made subject to minimum insurance requirements²¹⁵ or bonding requirements.²¹⁶

²¹⁴ Similar questions that have been raised about the dramatically different treatment that different kinds of bad luck receive. See Ronen Avraham & Issa Kohler-Hausmann, *Accident Law for Egalitarians*, 12 LEGAL THEORY 181, 187-88 (2006); see also Jules Coleman & Arthur Ripstein, *Mischief and Misfortune*, 41 MCGILL L.J. 91 (1995).

²¹⁵ Notably, most of the proposals for selling unmaturing tort claims contemplate not that would-be victims walk away with large, unrestricted stacks of cash, but rather that part of the savings be used to

B. Tweaking Transactions

Certain kinds of REVEs may be viewed as problematic not because of the risk endstates they produce, but due to fear that features of the transaction itself will induce people to choose wrongly. Similarly, it might be argued that the heterogeneity produced by REVEs can uniquely create difficulties within certain domains, even when seemingly analogous domains tolerate well the heterogeneity that comes from voluntary insurance. Yet in evaluating whether presently absent REVEs must or should remain so, it is important to examine where simple design tweaks can address these sources of concern. Although there may be many modifications capable of meeting various objections, two simple ones are considered here: modifying the timing and form of payments, and making the transaction a triangular one.

1. Timing and Form of Payments

As discussed above, insurance and other REVEs allow individuals to redistribute money among possible states of the world.²¹⁷ However, REVEs also commonly move money from one part of the life cycle to another. If impediments to borrowing or saving exist, REVEs may be affirmatively sought out as a means of moving money earlier or later in time. While ordinary insurance moves money to a later point in the life cycle (to the future state in which one is ill or injured), reverse insurance typically moves money earlier in the life cycle, to the uninjured state. Thus, where ordinary insurance incorporates an element of saving,²¹⁸ reverse insurance seems to incorporate an element of dissaving.

If we think that people are likely to be poor agents of their future selves primarily due to factors like myopia or a tendency to discount hyperbolically, this conflation of risk and liquidity might cause people to mischoose REVEs. Thus, some objections to event-detracting risk transactions may really be objections to the temporal structure that the choice typically takes. For example, some might oppose allowing people to sell their unmatured tort claims (particularly in the absence of any first-party insurance requirement) out of a concern about myopia.²¹⁹ If people are short-sighted, they might grab the lump of immediate cash without carefully weighing the long-run consequences and later come to regret their decision.

Notice, however, that it is possible to design mechanisms that break apart time

purchase other insurance, typically first-party or no-fault (such as workers comp). *See, e.g.,* Cooter, *supra* note 4, at 395; O'Connell, *supra* note 91.

²¹⁶ Cf. Shavell, *supra* note 210.

²¹⁷ *See* text accompanying notes 24-29, *supra*.

²¹⁸ *See* CALABRESI, *supra* note 3, at 47 ("Most private insurance involves a substantial element of intertemporal loss spreading. In this sense it is just a form of saving.").

²¹⁹ *See* Schwartz, *supra* note 89, at 425 (expressing the concern that potential victims would sell their unmatured tort claims too cheaply due to "irrationally high discount rates").

preferences and risk preferences. Rather than receive the expected value of one's unmatured tort claims all at once, for example, the payments could be spread out over a series of years or decades. Similarly, concerns about hyperbolic discounting might be addressed by interposing some period of time, such as six months, between the sale of the claim and the delivery of the (interest-adjusted) proceeds.²²⁰ As long as the present value equivalent of the payment is eventually made available, the purposes served by the REVE as such (catering to heterogeneity in risk preferences) would be fulfilled.

Likewise, to the extent that people exhibit a bias for lump sums over equivalent streams of payments, this feature could be removed from a given REVE. The point is a general one: any considerations that are extraneous to the concentration or spread of risk, whether involving the timing or form of payments or the time, place, or conditions under which transactions are made available, can be altered to more clearly present individuals with the choice between variable outcomes and the expected value equivalent. The fact that these two options tend to come bundled with other features presents no impediment once we focus on the issue of risk unbundling as such.²²¹

Two caveats are in order. First, people's cognitive biases likely extend to matters of risk-taking and insurance, as well as to questions of the timing of payment.²²² Thus, taking certain temporal elements out of the equation is no guarantee against mischoosing. Yet the discussion here is about clarifying what is essential to a given REVE and what can be removed from it. Policymakers might indeed deem mischoosing to be too great a hazard even after removing, say, the opportunity to immediately obtain a lump of cash from a REVE. On the other hand, it is possible that the remaining cognitive concerns could be addressed separately, as through risk defaults that counter cognitive biases.²²³

Second, there are serious normative questions about whether it is appropriate to constrict the temporal tradeoffs that people can make in the course of reallocating risk, since people may have quite rational reasons for wanting to receive payouts on a particular schedule.²²⁴ The question is sharpened by the fact that the capacity to deliver

²²⁰ Hyperbolic discounting, which involves very steep discounting in the immediate short run and much shallower discounting further out, can produce preference reversals as a pair of temporally separated rewards draws near. *See, e.g.*, Frederick et al., *supra* note 189, at 25.

²²¹ To be sure, choices about payment timing and form could constrain risk-bearing insofar as these choices keep people gaining immediate access to funds that might be used in the interim for risky investments or additional REVEs transactions. If people could use the prospect of the upcoming payments as collateral for immediate loans, these constraints would be lifted, although possibly at the cost of defeating the purpose of the change in timing and form. The cognitive response triggered by an immediate lump sum of cash in hand, however, may be quite different from the knowledge that one can use the dollar amount to obtain financing.

²²² *See, e.g.*, Kunreuther & Pauly, *supra* note 14; CALABRESI, *supra* note 3, at 55-58 (discussing both "paternalistic" and "semipaternalistic" rationales for doubting that voluntary insurance coverage will be adequate).

²²³ *See infra* Part IV.C.

²²⁴ This relates to the general difficulty in determining when an individual's choice should be viewed as a "mistake." *See, e.g.*, Mario J. Rizzo & Douglas Glen Whitman, *The Knowledge Problem of New Paternalism*. NY Univ. Law Econ Res. Pap. No. 08-60, <http://ssrn.com/abstract=1310732>.

immediate liquidity is one of the primary attractions of REVEs, given imperfections in capital markets. Yet if removing worrisome temporal elements is the only way to introduce a presently unavailable REVE, then choice is expanded rather than contracted by the move. My point is not to advocate for any particular design choice, but only to emphasize that risk allocations can be reconfigured in ways that need not inevitably entail particular payment arrangements.

2. Third Party Transactors

Although parties to an interaction, such as a manufacturer and a consumer, could reverse the risk arrangement as between themselves, they may find it beneficial to involve third party insurers or reverse insurers in the REVE transaction. As already noted, third party transactors make possible triangular risk arrangements that permit both parties to be insured or exposed.²²⁵ The involvement of third parties may also carry some additional advantages that can help to meet practical and normative objections to REVEs.

First, opening up REVEs in a given area to third party transactors fosters competition, which can help to address the concern that some parties will feel pressured into selling claims too cheaply (or paying too dearly for them).²²⁶ Competition does not necessarily safeguard parties against making what are (for them) bad bargains, but it does provide some check against monopolistic or exploitative pricing.

Second, the availability of third party transactors can help to address one of the reasons that default rules are often so potent: the fear that moving away from them will send a negative signal to the party with whom one is interacting.²²⁷ Often, parties will want their counterparties to know about their risk arrangements precisely because of what it signals about them,²²⁸ but in other instances the third party involvement may helpfully mute an unwanted signal.

Third, the availability of third party transactors can avoid some of the difficulties that might otherwise attend heterogeneous risk arrangements. For example, if it is unworkable for patients to selectively opt out of medical malpractice coverage because the precautions of the doctors are not scalable,²²⁹ patients could instead go to a reverse insurer to whom they could sell their rights and who would collect on their behalf,

²²⁵ See *supra* Part I.C.

²²⁶ See, e.g., Cooter, *supra* note 4, at 386-87.

²²⁷ See, e.g., Ben-Shahar & Pottow, *supra* note 13; Cass R. Sunstein, *Human Behavior and the Law of Work*, 87 VA. L. REV. 205, 225-26 (2001). Of course, transacting with a third party would not help if the persons to whom one fears sending an adverse signal would be aware of that transaction, as might be the case if concerns are mostly about the signals sent to loved ones or even to oneself. See Posting of Robin Hanson to Overcoming Bias, <http://www.overcomingbias.com/2009/09/insurance-as-signal.html> (Sept. 14, 2009, 21:45).

²²⁸ For example, if a party seeking to take on risk fears that her counterparty will take insufficient precautions if relieved of exposure, a triangular arrangement would address that worry. See Cooter & Porat, *supra* note 3; see also Hanson *supra* note 227 (discussing the possibility that the purchase of insurance could in some contexts convey care and concern).

leaving the doctor's liability unchanged but merely altering who is the payee.²³⁰ Similarly, a triangular arrangement that leaves both parties exposed to risk would address moral hazard concerns that might otherwise be present.²³¹

As these observations show, if direct reversals of risk allocations between two parties present difficulties, curtailing REVEs is not the only possible solution. Another alternative may be to even more fully unbundle risk from the underlying interaction by throwing open REVEs opportunities to third parties.

C. Defaults

The law always makes an initial choice about risk allocation, even when it does nothing more than leave a particular set of losses where they fall.²³² A focus on risk customization emphasizes that society's choice set is not limited to mandatory insurance or voluntary opt-in insurance; it is also possible to start with a system that insures people against loss and permit them to opt out. In this subpart, I discuss some well-known and less-recognized considerations that bear on this choice between defaults.

1. Sticky Starting Points

Considerable empirical evidence suggests that defaults tend to stick.²³³ This provides one reason to think carefully about the risk-related defaults that we have in place, including those that are embedded without comment in legal rules or social policies. If we think that one risk allocation is generally best for most of the people, most of the time, making that our default might seem to make sense—at least if we assume that those for whom it is *not* best do not differ systematically in terms of the size of the losses they will suffer or the difficulties they will face in moving away from the default.²³⁴

²²⁹ See *supra* Part III.D.2.

²³⁰ Cf. Cooter & Porat, *supra* note 3, at 225.

²³¹ *Id.*

²³² See Calabresi & Melamed, *supra* note 18, at 1091 (“When a loss is left where it falls in an auto accident, it is not because God so ordained it. Rather it is because the state has granted the injurer an entitlement to be free of liability and will intervene to prevent the victim’s friends, if they are stronger, from taking compensation from the injurer”) (footnote omitted).

²³³ Some of the most well-known research on the power of default rules is in the context of 401(k) plans. See, e.g., Bridgette C. Madrian and Dennis F. Shea, *The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior*, 116 Q. J. ECON. 1149 (2001); James J. Choi et al., *Passive Decisions and Potent Defaults*, in ANALYSES IN THE ECONOMICS OF AGING 59 (David A. Wise, ed. 2005). However, work on risk-taking has also documented significant default effects. See Johnson et al., *supra* note 14, at 46-48 (presenting experimental findings showing significant effects depending on the default risk regime); *id.* at 48 (observing that 20% of New Jersey motorists elected a “full right to sue” where state law required opting into this right, whereas 75% of Pennsylvania motorists retained this right when it was made the default under state law); see also Sunstein, *supra* note 14, at 114 (discussing these default effects).

²³⁴ See, e.g., Thomas J. Miles, *Posner on Economic Loss in Tort: EVRA Corp. v. Swiss Bank*, 74 U. CHI. L. REV. 1813, 1817-18 (2007). But see Ayres & Gertner, *supra* note 13, at 91 (describing “penalty defaults” which “are purposefully set at what the parties would not want”).

A number of cognitive explanations for default stickiness have been explored,²³⁵ but three are of particular interest here.²³⁶ First is a simple pricing effect. Changing a risk allocation requires effort, and effort is expensive to exert.²³⁷ Second is the “implicit advice” that defaults are often thought to provide.²³⁸ If people trust the authority presumed to be behind the selection, they may be especially likely to stay with the risk allocation.²³⁹ Taking these two points together, sticking with defaults can be viewed as a way of economizing on search costs.²⁴⁰ A third explanation, closely related, stems from the cognitive distinction between acts and omissions.²⁴¹ An act is more likely than an omission to trigger regret (and hence the kind of anticipated regret that gives people pause).²⁴² Where the act would involve moving away from coverage for a risk, making a choice also inevitably draws attention to the risk.²⁴³ Because knowledge of risks and of

²³⁵ See, e.g., Isaac Dinner et al., Partitioning Default Effects: Why People Choose Not to Choose (June 26, 2009), available at <http://ssrn.com/abstract=1352488>, at 3 (collecting citations and identifying three categories of reasons for default stickiness: “effort,” “implied endorsement,” and “reference dependence”); Choi et al., *supra* note 233, at 60 (listing three reasons that defaults matter in their model: the fact that moving away is a costly “act of commission,” the desire to exploit the “option value of waiting,” and the “tendency to procrastination”).

²³⁶ A fourth, the interaction between signaling and defaults, is omitted here because of its potential to be redressed through third party risk arrangements, as discussed above. See text accompanying note 227, *infra*.

²³⁷ See, e.g., Dinner, *supra* note 235, at 3. The idea that defaults can be powerful even when the ability to opt out is made readily and cheaply available lies at the heart of Cass Sunstein and Richard Thaler’s “libertarian paternalism” proposals. See, e.g., Cass R. Sunstein & Richard H. Thaler, *Libertarian Paternalism Is Not an Oxymoron*, 70 U. CHI. L. REV. 1159 (2003). Empirical work suggesting that making decisions is cognitively draining supports this effect. See, e.g., Roy F. Baumeister, *The Psychology of Irrationality: Why People Make Foolish, Self-Defeating Choices*, in THE PSYCHOLOGY OF ECONOMIC DECISIONS, VOL. 1: RATIONALITY AND WELL-BEING 3, 12-14 (Brocas & Carrillo, eds., 2003) (reviewing literature on “decision fatigue”).

²³⁸ See, e.g., Choi et al., *supra* note 233, at 70 (noting defaults may provide “implicit advice”); see also THALER & SUNSTEIN, *supra* note 49, at 35, 83; Dinner, *supra* note 235, at 3. A related possibility is that people might assume some help will be forthcoming if things go systematically awry with the default choice (as in a natural disaster, where the default is to remain uninsured).

²³⁹ Some scholars have noted a parallel in Lon Fuller’s discussion of formalism as serving (among other things) a “cautionary” function. See Ayres & Gertner, *supra* note 13, at 124 (citing and discussing Lon Fuller, *Consideration and Form*, 41 COLUM. L. REV. 799 (1941)); see also Brett H. McDonnell, *Sticky Defaults and Altering Rules in Corporate Law*, 60 SMU L. REV. 383, 392-93 (2007).

²⁴⁰ For a discussion of the relevance of search costs to insurance decisions, see, e.g., Kunreuther & Pauly, *supra* note 14, at 76-77.

²⁴¹ See, e.g., Johnson et al., *supra* note 14, at 48 (discussing potential relevance to insurance decisions of work showing an asymmetry between acts and omissions); Choi et al., *supra* note 233, at 60 (noting costliness of “acts of commission”). This regret-avoidance explanation, to the extent it hinges on moves from the status quo, also fits within Dinner et al.’s category of “reference dependence.” See Dinner et al., *supra* note 235, at 3.

²⁴² See, e.g., Daniel Kahneman & Amos Tversky, *The Psychology of Preferences*, 246 Sci. Am. 160, 173 (1982); RICHARD H. THALER, THE WINNER’S CURSE: PARADOXES AND ANOMALIES OF ECONOMIC LIFE 73 (1992); Daniel Kahneman, *Varieties of Counterfactual Thinking*, in WHAT MIGHT HAVE BEEN: THE SOCIAL PSYCHOLOGY OF COUNTERFACTUAL THINKING 375, 388-92 (NEAL J. ROESE & JAMES M. OLSON EDS., 1995); *supra* note 167 and accompanying text.

²⁴³ See CALABRESI, *supra* note 3, at 167, n. 25 (“[o]pting in [to liability] may be different from opting out, for it might seem that where one party opts into liability, he has a greater awareness of what he is doing

the availability of insurance plays an important role in coverage decisions,²⁴⁴ the default setting's capacity to influence what people pay attention to could prove independently important.²⁴⁵

In the present context, these cognitive factors are only part of the story. Altering a risk-bearing arrangement typically entails nontrivial administrative costs. Where a third party insurer or reverse insurer provides the service of rearranging risk, the REVE will not be actuarially fair, but will instead build in an administrative increment. As a result, some people who would have accepted the REVE at an actuarially fair price will instead stick with the default. The larger the administrative costs are, the stickier the default will be, although this stickiness can be reduced through subsidies or measures designed to reduce transaction costs. If there are asymmetries in the administrative costs of moving in one direction rather than another, this would of course offer an additional reason for attending carefully to the default choice.

2. Heterogeneously Inertial

Default rules, for the reasons already suggested, tend to be remarkably inertial. But it is likely that people are heterogeneous in their susceptibility to inertia's pull.²⁴⁶ This possibility becomes interesting if we posit that those differences might be correlated with either risk preferences or risk profiles. Such correlations do not seem implausible, although it is not self-evident which way they would run.²⁴⁷ Those who behave in ways

than when he allows the other party to opt out of liability." After providing a counterexample in which a "giant milling company us[es] a form contract requiring opting into liability," Calabresi concludes that "knowledge or awareness of risk may affect the choice of whom we wish to hold initially liable and whether we wish to allow such a party to exculpate himself." *Id.*

²⁴⁴ See, e.g., KUNREUTHER, *supra* note 43, at 57-61.

²⁴⁵ This point relates to the argument for a "penalty default"—a default so unattractive that it encourages opting out, and hence conscious consideration of the alternatives. See Ayres & Gertner, *supra* note 13, at 91; see also Choi et al., *supra* note 233, at 72.

²⁴⁶ Some existing empirical work has uncovered patterns of heterogeneity in default-stickiness. See, e.g., Madrian & Shea, *supra* note 233, at 1158-61 & tbl. IV, 1171-73 & tbl. VIII, 185 (2001) (finding that a large employer's switch from an opt-in 401(k) program to one featuring automatic enrollment with an opt-out had much larger effects on young workers, low-earning workers, women, and minorities; not only did these groups participate at much higher levels under automatic enrollment than they did under an opt-in system, they were more likely to stick with the specific default contribution level and investment allocation). The possibility that moving away from one default might be easier than moving away from another has been raised in a number of contexts. Such an effect might occur (among other reasons) if the parties who occupy one side of a given transaction are systematically less likely to agree to a switch if they begin with the entitlement than are the parties who occupy the other side of the transaction. See Sunstein, *supra* note 14, at 122-23 (raising the possibility that workers would overvalue particular rights and be unwilling to waive them, even when it would be in their best interest to do so).

²⁴⁷ Recent empirical work has explored heterogeneity in risk preferences. See, e.g., Thomas Dohmen et al., *Are Risk Aversion and Impatience Related to Cognitive Ability?*, AM. ECON. REV. (forthcoming 2009) (in a study of German adults, finding greater risk aversion among people with lower scores on an IQ test); Daniel J. Benjamin, et al. *Who Is 'Behavioral'? Cognitive Ability and Anomalous Preferences* (2006), available at <http://ssrn.com/abstract=675264> (in a study of Chilean high school students, finding less "small-stakes" risk aversion among with higher scores on standardized tests); Luigi Guiso & Monica

that make them better risks or who are very averse to risk may also be adept at micromanaging their lives and practiced at overcoming inertia. If people are bad risks because they are careless, that lack of care might manifest itself in a tendency not to bother with the hassles of gathering information, filling out paperwork, or otherwise proactively engaging in decisionmaking. On the other hand, perhaps risk-seekers are marked by an extreme lack of complacency that makes them less susceptible to inertia. Moreover, to the extent that sticking with a default means accepting a social planner's advice on a particular question or conforming one's behavior to that of others,²⁴⁸ risk-seekers might be more willing to break away from the pack or shun official recommendations.

In either case, these differences could bear on the question of adverse selection. In the standard adverse selection story, people who are bad risks opt in while people who are good risks stay out. But scholarly exploration of the converse phenomenon of "advantageous" or "propitious" selection raises some interesting questions.²⁴⁹ If much of what drives advantageous selection in the opt-in model is simple inertia on the part of the less good risks (who stay out of the pool), we might see more of these less good risks in the risk pool if the default were flipped so that everyone starts off insured. On the other hand, if risk seekers are especially prone to action, their exits under such a system might outstrip any exits from the pool by the good risks.²⁵⁰ In addition, if the risk aversion of many good risks is significantly influenced by framing, the prospect of taking on additional exposure through a reverse insurance move might be much less attractive than a failure to insure in an opt-in system. This could lead some good risks to stay in a

Paiella, *Risk Aversion, Wealth, and Background Risk*, 6 J. EUROPEAN ECON. ASSOC. 1109 (2008) (examining relationship between wealth and risk aversion, as well as other aspects of heterogeneity in risk preferences); Peggy D. Dwyer et al., *Gender Differences in Revealed Risk Taking: Evidence from Mutual Fund Investors*, 76 ECON. LETTERS 151 (2002) (finding evidence that women accept less investment risk than men, as well as positive effects of wealth and education on willingness to take investment risks); Rachel Croson & Uri Gneezy, *Gender Differences in Preferences*, 47 J. ECON. LIT. 448, 449-54 (2009) (reviewing experimental findings on the greater risk aversion of women, discussing possible reasons, and noting exceptions in managerial and professional subsets); Jonah Gelbach et al., *Passive Discrimination: When Does It Make Sense to Pay Too Little*, 76 U. CHI. L. REV. 797, 817-19 (2009) (reviewing empirical literature on gender differences in risk preferences). Another interesting line of work assesses inconsistencies in risk preferences across domains. See, e.g., Levon Barseghyan et al., *Are Risk Preferences Stable Across Contexts? Evidence from Insurance Data* (2009), available at <http://ssrn.com/abstract=1220663>.

²⁴⁸ See *supra* note 238 and accompanying text.

²⁴⁹ See *supra* note 202 and accompanying text.

²⁵⁰ Perhaps suggestive on this point is evidence on when low risk insureds do and do not drop out of policies with "guaranteed renewability" provisions that insure against selective experience-rated increases in policy premiums. See SCOTT E. HARRINGTON & GREGORY R. NIEHAUS, *RISK MANAGEMENT AND INSURANCE* 351-50 (2d ed. 2004) (attributing the availability of guaranteed renewability provisions for individuals and the resistance to such provisions in small group insurance settings in the period prior to legal mandate to the higher transaction costs of switching for individuals); Kunreuther & Pauly, *supra* note 14, at 107-08 (citing Harrington & Niehaus, and observing that "[t]he same type of inertia and inattention that sometimes results in failures of insurance markets to emerge . . . may sometimes preserve them as well").

default-insured system even when they would not opt in under a default-uninsured system.

The direction and magnitude of these effects would be an excellent avenue for further empirical research. It is possible that adverse selection effects could be aggravated or mitigated based entirely on default choice. If so, then flipping defaults could make some REVEs that have been ruled out on adverse selection grounds more feasible.

3. Risk and Redistribution

The choice of default may often seem to be driven by distributive considerations. Providing a taxpayer with publicly funded insurance and letting her opt out for cash places her in a different distributive position than simply leaving her free to buy her own coverage from a no-insurance baseline.²⁵¹ But the choice of default need not dictate a particular distributive result, given the ability to combine different funding mechanisms with different risk allocation baselines. Thus, an opt-in system can be coupled with subsidies, and an opt-out system can be funded by individual insureds in a manner corresponding to the pricing structure of private insurance (the direct deduction of insurance premiums from paychecks offers a concrete example).

Consideration of alternative defaults can become especially important when risk pooling consciously builds in a redistributive element, as it often does. The example of genetic testing offers a case in point. Suppose society has decided it is normatively inappropriate for people with different levels of genetic risk to bear different insurance costs. One approach is to pass a law mandating that insurers ignore the results of genetic tests in setting premiums.²⁵² If people know their own risk levels, however, those at lower risk may exit the pool to avoid cross-subsidizing those at higher risk—the usual adverse selection problem.²⁵³ But if we were to switch to a new baseline in which everyone is automatically insured absent a decision to opt out, it becomes feasible to maintain society's normative commitment while eliminating the feature of the situation responsible for the adverse selection dynamic—the suppression of relevant risk-related information.

To see this point, suppose health insurance is provided to everyone as an initial matter and funded in a way that does not distinguish among genetic risks.²⁵⁴ Because the cost of covering those with risky genes would be built into the public finance system and spread across all taxpayers, everyone would be a mandatory participant in the redistributive

²⁵¹ This assumes, as seems plausible, that the funding mechanism for public insurance draws from individuals in a pattern that differs from the price structure each would encounter in purchasing private insurance.

²⁵² See *supra* note 193 and accompanying text.

²⁵³ See *supra* notes 193-196, and accompanying text.

²⁵⁴ Although the example in the text focuses on genetic risks, the same analysis would apply to preexisting conditions or any other factor that society might view as normatively inappropriate to factor into the cost of coverage, such as the status of having been a victim of domestic violence. See Deborah S. Hellman, *Is Actuarially Fair Insurance Actually Fair? A Case Study in Insuring Battered Women*, 32 HARV. C.R.-C.L. L. REV. 355 (1997).

scheme that subsidizes the premiums of those with unlucky genes.²⁵⁵ Yet it would still be possible to allow people to sell or relinquish their individual insurance claims against the system in exchange for a sum representing the expected value of those claims (less some administrative increment). Thus, someone at low genetic risk could opt out of insurance, but would get only the low expected value payment associated with their risk class; this would often be much less than the amount they had paid towards the program in taxes because they would not be permitted to opt out of the redistributive component of the policy.²⁵⁶ Unlike in the opt-in case, there is no public policy difficulty with pricing the expected value of the claims of those opting out as accurately as possible, using genetic information or any other available information sources; indeed, such pricing would be necessary to keep the system from unraveling.

Thus, there may be an interesting public policy asymmetry between taking account of certain kinds of information (here, genetic predispositions) in pricing insurance premiums (the opt-in price) versus taking account of that information in pricing reverse insurance (the opt-out price). My objective is not to defend this particular approach to insurance or to the use of genetic information, but rather to show that it is not impossible to break apart the redistributive and risk-pooling elements that a particular social policy embodies, and to allow people to opt out of the latter without endangering the former. By making use of relevant information rather than suppressing it, an adverse selection dynamic can be avoided. The same principle could be applied to a wide range of situations in which risk pooling is combined with redistribution. We might, for example, be more willing to allow people to opt out of the certain portions of the social welfare system if we could accurately price their expected claims against the system (very close to zero for some individuals).²⁵⁷

D. Pushing, Sticking, Blocking

After setting an initial risk allocation, society must also decide how hard or easy it will be to move away from that allocation.²⁵⁸ Making a risk arrangement the default selection makes it effortless to choose, while an alternative that people are literally blocked or stopped from selecting is prohibitively difficult to choose. Between these

²⁵⁵ For discussion of explicit and implicit ways to package redistribution based on (or insurance against) unlucky genetic endowments, see generally Logue & Slemrod, *supra* note 138.

²⁵⁶ People at high genetic risk could also opt out and received the (higher) expected value equivalent of their potential claims—a move that would effectively convert society’s in-kind redistribution to them (in the form of insurance) into cash redistribution. I thank Ariel Porat for discussions on this point. For further discussion of the alternative ways in which society might choose to meet the normative commitment that genetic nondiscrimination rules embody, see Logue & Slemrod, *supra* note 138.

²⁵⁷ There might be other reasons to oppose such a move however, given the potential interdependence among risk choices. For example, allowing opt-outs may change the political economy in undesirable ways. See *supra* note 210.

²⁵⁸ The relative neglect of this question has been noted in other contexts. See McDonnell, *supra* note 239, at 384 (“Despite the longstanding debate over default versus mandatory rules, scholars have paid

extremes lie a spectrum of possibilities, from making a choice simpler or more attractive to making it more difficult or less attractive.²⁵⁹

1. Catalysts

Making a risk allocation the default alternative is often the most direct and powerful way to encourage its adoption, but this alternative may not always be feasible or may be undesirable for other reasons. In such cases, other ways to “unstick” the default selection may be sought. Thaler and Sunstein’s notion of “one-click paternalism”²⁶⁰ focuses on keeping opting-out costs low in the context of governmentally chosen defaults that are (by assumption) deemed to be normatively desirable. Significantly, supply of the alternative arrangement is guaranteed by the design of the policy itself to be delivered upon a single mouse-click. Nor do the proponents of such systems fear that people will opt for the alternative too rarely; because the superiority of the default selection is presumed, small numbers of opt-outs are counted as successes, not occasions for concern.²⁶¹ But once we examine default selections outside of this paradigm, easing or encouraging shifts may require overcoming obstacles on the supply side, the demand side, or both.

On the supply side, it is obvious that a REVE will be maximally difficult to elect if no counterparty is willing to enter into it.²⁶² New markets in REVEs might be jump-started through governmental incentives directed at spurring innovation in risk²⁶³ or other efforts aimed at reducing transaction costs associated with reversing background risk allocations.²⁶⁴ Reversibility could also be advanced by requiring parties to offer an alternative risk arrangement along with the default, or subsidizing them for offering this alternative. Similarly, it would be possible to require that a REVE be permitted only when the default arrangement remains available at a separately stated price.²⁶⁵ For example, although the law often disallows waivers of liability (an attempted reversal of the risk allocation in the tort system), some commentators have argued such waivers

much less attention to how easy it is to opt out of the default rules - that is, how ‘sticky’ the rules are.”).

²⁵⁹ See McDonnell, *supra* note 239, at 385 (2007) (“Rather than the binary choice of labeling a rule as default or mandatory, we can place various rules along a spectrum of stickiness.”).

²⁶⁰ THALER & SUNSTEIN, *supra* note 49, at 248-49 (discussing “one-click paternalism,” which aims for opt-out procedures that are no more difficult than a single mouse-click).

²⁶¹ See Thaler & Sunstein, *supra* note 237, at 1191 (stating that low numbers of people opting out of default savings plans “supports (though it does not prove) the claim that they are helped by a system that makes joining easy”). For a critique of this argument, see Gregory Mitchell, *Libertarian Paternalism Is An Oxymoron*, 99 NW. U.L. REV. 1245, 1254 (2005).

²⁶² See Kunreuther & Pauly, *supra* note 14, at 98-110 (examining supply-side issues).

²⁶³ See, e.g., SHILLER, *supra* note 163, at 208.

²⁶⁴ See, e.g., Kunreuther & Pauly, *supra* note 14, at 116-17.

²⁶⁵ This could be viewed as dampening risk modifications rather than catalyzing them, insofar as it requires dual pricing to accompany a REVE offering where doing so is costly. On the other hand, it might improve the use of REVEs by addressing some of the mischoosing concerns that might otherwise accompany them.

should be permitted if they are offered along with a separately priced alternative in which the traditional tort liability relationship is preserved.²⁶⁶ We could imagine additional variations on this theme in which the two prices, or the gap between them, is not left entirely to the discretion of the party offering the good or service but is instead keyed to difference in the costs of offering the two alternatives. Such refinements bear an intellectual kinship with liability rules, in which transactions are eased by permitting one party to unilaterally accomplish a desired change in entitlement structure upon payment of a specified price.²⁶⁷

Additional problems exist on the demand side.²⁶⁸ Research on consumer choices about insurance has found that behavior diverges considerably from a utility maximization model, with consumers variously purchasing “too much” and “too little” insurance.²⁶⁹ Where a rational maximizer model would predict a greater willingness to pay to insure against large unlikely losses than against routine small losses, people often exhibit the opposite tendency.²⁷⁰ People are generally reluctant to purchase insurance against catastrophic low-probability events,²⁷¹ but often obtain seemingly anomalous levels of coverage against small and routine losses, such as minor preventative health expenditures or problems with low-cost consumer goods.²⁷² Similarly, deductibles tend to be much smaller than utility theory would predict.²⁷³

A variety of approaches to these apparent patterns of mischoosing have been

²⁶⁶ See, e.g., Alan Schwartz, *Proposals for Products Liability Reform: A Theoretical Synthesis*, 97 YALE L.J. 353, 407 (1988); Mark A. Geistfeld, *The Political Economy of Neocontractual Proposals for Products Liability Reform*, 72 TEX. L. REV. 803, 821-23 (1994) (discussing this proposal and quoting ALI Reporters’ Study that deemed the idea worthy of “further attention”).

²⁶⁷ See Calabresi & Melamed, *supra* note 18, at 1092. More generally, entitlement theory could bring important insights to risk shifting. Morris took a step in this direction by including “Transferred Claim rules” in her taxonomy of entitlements. Morris, *supra* note 4, at 866-75.

²⁶⁸ See Kunreuther & Pauly, *supra* note 14, at 174-87 (examining demand-side issues).

²⁶⁹ See, e.g., BARON, *supra* note 23, at 508-11; Kunreuther & Pauly, *supra* note 14; Johnson et al., *supra* note 14; Slovic et al., *supra* note 23. As the discussion above suggested, however, there are some additional factors that complicate assumptions about what is the “right” amount of insurance for people to purchase. See text accompanying notes 30-34, *supra*. For example, if people derive utility from insurance in ways other than through the money it provides, their behavior might be maximizing even if it would not appear that way to an onlooker. See *supra* note 33 and accompanying text.

²⁷⁰ Empirical work provides some confirmation of these patterns. See, e.g., Slovic et al., *supra* note 23 (presenting and analyzing results of experimental studies that gave people choices about how and whether to insure against risks in hypotheticals involving draws from an urn and a more concrete “farm game”).

²⁷¹ See, e.g., Kunreuther & Pauly, *supra* note 14, at 92-93. There are some exceptions to this pattern that suggest errors running in the opposite direction. For example, people appear overly willing to insure against extremely unlikely events that are highly mentally available. See, e.g., *id.* at 94-95 (flight insurance). There is also heterogeneity in willingness to pay for insurance coverage at all. For example, a significant subset of people (dubbed “invincibles” in the literature to signify their overoptimism) shuns health insurance altogether. See Baker & Siegelman, *supra* note 81.

²⁷² See, e.g., Kunreuther & Pauly, *supra* note 14, at 65-66, 113-14; Cutler & Zeckhauser, *supra* note 139, at 19-20, 25-28.

²⁷³ See, e.g., Kunreuther & Pauly, *supra* note 14, at 88-90; Justin Sydnor, *(Over)Insuring Modest Risks*, unpublished manuscript (August 2009) available at <http://wsomfaculty.case.edu/sydnor/deductibles.pdf>.

discussed in the literature, including strategies that rely on bundling and framing.²⁷⁴ To the extent these approaches lower cognitive resistance to welfare-enhancing (or externality-reducing) REVEs, they would qualify as catalysts here. Other demand-side efforts might be directed at generating information and social support for new or unconventional risk-bearing arrangements.

2. Dampeners

The fact that a risk allocation is not the default already puts something of a damper on it. But it is possible to do more, short of outright bans, to either discourage particular choices or minimize instances of mischoosing. Some of the design approaches discussed above, such as altering the timing and form of payments, could serve that function. Other familiar strategies to dampen shifts would include a more cumbersome administrative process, regulations that have the effect of raising the price of the alternative, waiting periods before a choice becomes final, and so on—all of which impose costs on those who wish to engage in such shifts.²⁷⁵

The ultimate dampener, of course, is an outright ban. While this may be appropriate in some contexts, the preceding discussion suggests that we might first consider precisely why a given REVE seems objectionable, whether its objectionable features can be cost-effectively excised without doing away with it altogether, and whether there is some measure short of a prohibition that would respond to concerns about it. Perhaps the strongest case for bans emerges where heterogeneity in risk arrangements is itself problematic, as through adverse selection. Even there, however, it is worth examining whether heterogeneity reached from different starting points with different degrees of stickiness can do a better job of avoiding these difficulties.

CONCLUSION

Familiar devices like insurance policies and lottery tickets allow people to rearrange risk, but they offer access to only a small subset of imaginable risk configurations. Law, public policy, and entrenched commercial and social practices also pervasively structure risk, but they typically do so without comment and without offering any means for undoing the resulting risk allocation. In this paper, I have used the REVEs framework to direct attention to the enormous number of untapped possibilities for reallocating risk. Unlike most existing work on the topic, however, this paper does not argue the merits of any particular rearrangement of risk. Rather, I have tried to make a case for paying attention to risk customization itself. Doing so not only points the way to new alternatives

²⁷⁴ See, e.g., Kunreuther & Pauly, *supra* note 14, at 111-18; Slovic et al., *supra* note 23, at 70-71; Baker & Siegelman, *supra* note 81; see also Johnson et al., *supra* note 14, at 42-46.

²⁷⁵ In-kind impositions (waiting periods, extra mouse-clicks, queues) are usually thought to be especially costly because they destroy value outright rather than merely transferring it elsewhere. See, e.g., DONALD N. MCCLOSKEY, *THE APPLIED THEORY OF PRICE* 342-43 (1982).

but also illuminates gaps in existing opportunities to trade in unbundled risk.

Many theoretically possible REVEs are doubtless unavailable for very good reasons—perhaps markets for them cannot be sustained, the moral hazard problems attending them are too great, or the heterogeneity that they would introduce into risk allocations would be independently problematic. But it is also quite likely that many of the missing entries in the menu are absent for reasons that do not withstand careful scrutiny. Society's framing of various risk situations may have needlessly placed certain options off-limits, and the tendency of discussions to conflate distinct objections may also have impeded resort to new risk management tools. Finding new, workable alternatives to existing risk configurations offers the possibility of efficiency gains. An expanded menu of alternatives may also offer as-yet-unexplored opportunities to realize gains by exploiting the asymmetries associated with starting in one place rather than another. Asking how an alternative risk arrangement would look also directs attention to the often unacknowledged ways in which law spreads risk across groups or concentrates it on particular parties. Even if particular REVEs are ultimately rejected as unworkable, considering them carries the threshold benefit of allowing us to see more clearly how existing arrangements manage risk.

At bottom, the paper argues for a move to a new analytic baseline in thinking about risk. Risk is presently distributed and rearranged in very limited ways that are unlikely to represent the full complement of socially useful configurations. With Arrow, we might ask ourselves what the world would look like if “we could introduce into the economic system any institutions we wish for shifting risks instead of being confined to those developed historically.”²⁷⁶ Rather than unreflectively accept the smattering of risk arrangements that history and cognition have served up over time or engage in a haphazard and piecemeal contemplation of specific alternatives, scholars and policymakers might usefully work backwards from the expanded set of alternatives suggested by the logic of risk unbundling.

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²⁷⁶ Arrow, *Insurance*, *supra* note 1, at 138.

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